

## SEMINOLE COUNTY GOVERNMENT AGENDA MEMORANDUM

**SUBJECT:** Construction Contract: CC-2213-07/LKR - Fern Park Water System Improvements Phase I

**DEPARTMENT:** Administrative Services

**DIVISION:** Purchasing and Contracts

**AUTHORIZED BY:** Frank Raymond

**CONTACT:** Lisa Riner

**EXT:** 7113

**MOTION/RECOMMENDATION:**

Award CC-2213-07/LKR in the amount of \$254,865.19 to Expertech Network Installation, Inc. of Boca Raton, Florida, for all labor, materials, equipment, transportation, coordination and incidentals necessary to connect to the existing 8-inch water main at the intersection of US 17-92 and O'Brien Avenue and to construct approximately 236 feet of new 8-inch water main (approximately 180 feet will be directional bore installation) along the south side of O'Brien Avenue to Jaffa Drive.

County-wide

Ray Hooper

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**BACKGROUND:**

CC-2213-07/LKR will provide for all labor, materials, equipment, transportation, coordination and incidentals necessary for the following work. The contractor shall connect to the existing 8-inch water main at the intersection of US 17-92 and O'Brien Avenue and construct approximately 236 feet of new 8-inch water main (approximately 180 feet will be directional bore installation) along the south side of O'Brien Avenue to Jaffa Drive. The contractor shall also construct approximately 1,110 feet of new 8-inch water main (approximately 820 feet will be directional bore installation) along South Street, located between Driftwood Drive and Lauren Court and approximately 110 feet of new 8-inch water main (approximately 65 feet will be directional bore installation) along Highland Drive, extending south of South Street. At the abandoned Fern Park Water Treatment Plant, the contractor shall properly abandon the potable well, lug the active water main, demolish the block building and all its appurtenances, remove and dispose of all materials, replace existing site fencing, and grass all disturbed areas.

The project was publicly advertised and the County received three (3) responses. The Review Committee, consisting of Patti Leviti, Project Manager, Environmental Services; Brad Stroppel, Senior Engineer, Environmental Services; and Mike Harber, Senior Engineer, Environmental Services, reviewed the responses. Consideration was given to bid price, qualifications and experience.

The Review Committee recommends award of the Agreement to the lowest priced, responsive, responsible bidder, Expertech Network Installation, Inc. of Boca Raton, Florida, in the amount of \$254,865.19. The completion time for this project is one hundred eighty (180) calendar days from issuance of the Notice to Proceed by the County. The attached backup documentation includes the Bid Tabulation.

This is a budgeted project and funds are available in the account line for Water and Sewer Bonds, Construction in Progress - Fern Park Water System Upgrade (40105.169100, CIP #00203801).

**STAFF RECOMMENDATION:**

Staff recommends that the Board award CC-2213-07/LKR in the amount of \$254,865.19 to Expertech Network Installation, Inc. of Boca Raton, Florida, for all labor, materials, equipment, transportation, coordination and incidentals necessary to connect to the existing 8-inch water main at the intersection of US 17-92 and O'Brien Avenue and to construct approximately 236 feet of new 8-inch water main (approximately 180 feet will be directional bore installation) along the south side of O'Brien Avenue to Jaffa Drive.

**ATTACHMENTS:**

1. CC-2213-07\_LKR Award Agreement to Expertech Network Installation, Inc.
2. CC-2213-07\_LKR Agenda Backup


**Additionally Reviewed By:**

☒ County Attorney Review ( Ann Colby )

**CONSTRUCTION SERVICES AGREEMENT  
FERN PARK WATER SYSTEM IMPROVEMENT PHASE 1  
(CC-2213-07/LKR)**

**THIS AGREEMENT** is dated as of the \_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_,  
by and between **EXPERTECH NETWORK INSTALLATION, INC.**, duly authorized  
to conduct business in the State of Florida, whose address is 6781  
West Sunrise Boulevard, Plantation, Florida 33313, hereinafter called  
"CONTRACTOR", and **SEMINOLE COUNTY**, a political subdivision of the  
State of Florida, whose address is Seminole County Services Building,  
1101 East First Street, Sanford, Florida 32771, hereinafter called  
"COUNTY". COUNTY and CONTRACTOR, in consideration of the mutual  
covenants hereinafter set forth, agree as follows:

**W I T N E S S E T H:**

**SECTION 1. WORK.**  **CONTRACTOR** shall complete all Work as  
specified or indicated in the Contract Documents and the attached  
Exhibit A - Technical Specifications. The Work is generally described  
as Fern Park Water System Improvements Phase 1.

The Project for which the Work under the Contract Documents is a  
part is generally described as Fern Park Water System Improvements  
Phase 1.

**SECTION 2. ENGINEER.**

(a) **ENGINEER OF RECORD** as named in the Contract Documents shall  
mean CPH/Katriina Bowman, whose address is 500 W. Fulton Street,  
Sanford, Florida 32771-2808.

(b) "CEI" is COUNTY's contracted Consultant for construction,

engineering and inspection ("CEI") services. As named in the Contract Documents, "CEI" shall mean CH2M Hill whose address is 225 East Robinson Street, Suite 505, Orlando, Florida 32801.

### **SECTION 3. CONTRACT TIME.**

(a) All provisions regarding Contract Time are essential to the performance of this Agreement.

(b) The Work shall be substantially completed as described in subsection 14.13 of the General Conditions, within ONE HUNDRED FIFTY (150) calendar days after the date when the Contract Time begins to run as provided in subsection 2.2 of the General Conditions. The Work shall be finally completed, ready for Final Payment in accordance with subsection 14.9 of the General Conditions, within THIRTY (30) calendar days after the actual date of Substantial Completion.

(c) The parties acknowledge that the Contract Time provided in this Section includes consideration of adverse weather conditions common to Central Florida including the possibility of hurricanes and tropical storms.

(d) The Contract Time provided in this Section includes thirty (30) days allocated specifically to CONTRACTOR's responsibility for utility coordination or relocation of utilities at or adjacent to the Project site. The thirty (30) days shall be depicted by CONTRACTOR as float time not impacting Controlling Work Items on CONTRACTOR's critical path scheduling. No Contract Time extensions shall be considered related to utility coordination matters including, but not



limited to, utility relocations and conflicts unless the utility related time impacts exceed thirty (30) Days impact on Controlling Items of Work in accordance with the Project Schedule.

(e) In the event that the Work requires phased construction, then multiple points of Substantial Completion may be established in the Supplementary Conditions.

#### **SECTION 4. CONTRACT PRICE.**

(a) COUNTY shall pay CONTRACTOR for performance of the Work in accordance with the Contract Documents on the basis of the Total Bid (original Contract Price). CONTRACTOR's total compensation is TWO HUNDRED FIFTY-FOUR THOUSAND EIGHT HUNDRED SIXTY-FIVE AND 19/100 DOLLARS (\$254,865.19) subject only to increases or decreases made in strict conformance with the Contract Documents.




(b) CONTRACTOR agrees to accept the Contract Price as full compensation for doing all Work, furnishing all Materials, and performing all Work embraced in the Contract Documents; for all loss or damage arising out of performance of the Work and from the action of the elements or from any unforeseen or unknown difficulties or obstructions which may arise or be encountered in the prosecution of the Work until the Final Acceptance; and for all risks of every description connected with the Work.

(c) CONTRACTOR acknowledges that CONTRACTOR studied, considered, and included in CONTRACTOR's Total Bid (original Contract Price) all costs of any nature relating to: (1) performance of the

Work under Central Florida weather conditions; (2) applicable law, licensing, and permitting requirements; (3) the Project site conditions, including but not limited to, subsurface site conditions; (4) the terms and conditions of the Contract Documents, including, but not limited to, the indemnification and no damage for delay provisions of the Contract Documents.

(d) CONTRACTOR acknowledges that performance of the Work will involve significant Work adjacent to, above, and in close proximity to Underground Facilities including utilities which will require the support of active utilities, as well as, the scheduling and sequencing of utility installations and relocations (temporary and permanent) by CONTRACTOR.

(1) In addition to  the acknowledgments previously made, CONTRACTOR acknowledges that CONTRACTOR's Total Bid (original Contract Price) specifically considered and relied upon CONTRACTOR's own study of Underground Facilities, utilities in their present, relocated (temporary and permanent) and proposed locations, and conflicts relating to utilities and Underground Facilities.

(2) CONTRACTOR acknowledges that CONTRACTOR's Total Bid (original Contract Price) considered and included all of CONTRACTOR's costs relating to its responsibilities to coordinate and sequence the Work of CONTRACTOR with the work of COUNTY with its own forces, the work of other utility contractors, and the work of others at the Project site.

## **SECTION 5. PAYMENT PROCEDURES.**

(a) *Application for Payment.* CONTRACTOR shall submit Applications for Payment in accordance with Section 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

(b) *Progress Payments.* COUNTY shall make progress payments on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, in accordance with Section 14 of the General Conditions.

(c) *Final Payment.* Upon Final Completion and acceptance of the Work in accordance with subsection 14.9.1 of the General Conditions, COUNTY shall pay the remainder of the Contract Price as provided in subsection 14.9.1.

## **SECTION 6. ADDITIONAL RETAINAGE FOR FAILURE TO MAINTAIN PROGRESS ON THE WORK.**

(a) Retainage under the Contract Documents is held as collateral security to secure completion of the Work.

(b) In the event that CONTRACTOR fails to physically mobilize to the Work site as required by Section 6.19 of the General Conditions, COUNTY may withhold additional retainage to secure completion of the Work in an amount equal to the product of the number of days after the 31<sup>st</sup> day following the Date of Commencement of Contract Time and the liquidated damage amount for Substantial Completion set forth in Section 9 of this Agreement. The additional retainage will be withheld from the initial and each subsequent

Progress Payment. The additional retainage held under this subsection will be released to CONTRACTOR in the next Progress Payment following the ENGINEER's approval of a supplementary Progress Schedule demonstrating that the requisite progress will be regained and maintained as required by Section 6.19.2 of the General Conditions.

(c) If CONTRACTOR is behind schedule and it is anticipated by COUNTY that the Work will not be completed within the Contract Time, COUNTY may withhold additional retainage in anticipation of liquidated damages equal to the product of the number of days after the scheduled Contract Time (Substantial Completion or Final Completion) and the amount of liquidated damages set forth in Section 9 of this Agreement. The additional retainage under this subsection may, at COUNTY's discretion, be withheld from subsequent Progress Payments. Any additional retainage held under this subsection shall be released to CONTRACTOR in the next Progress Payment following the ENGINEER's approval of a supplemental Progress Schedule demonstrating that the requisite progress will be regained and maintained as required by Section 6.19.2 of the General Conditions.

**SECTION 7. CONTRACTOR'S REPRESENTATIONS.** In order to induce COUNTY to enter into this Agreement, CONTRACTOR makes the following representations:

(a) CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and weather; utility locations; all local conditions; Chapter 220, Part 1, "Purchasing

Code", Seminole County Code; federal, state, and local laws; and ordinances, rules, policies, and regulations that in any manner may affect cost, progress, or performance of the Work.

(b) CONTRACTOR has studied carefully and considered in its Bid all reports of investigations and tests of subsurface and physical conditions of the site affecting cost, progress, scheduling, or performance of the Work.

(c) CONTRACTOR has studied carefully and considered in its Bid the Plans and Specifications, performed necessary observations and examinations, and studied the physical conditions at the site related to Underground Facilities, utility installations, conflicts, relocations (temporary and permanent), and all other Underground Facilities and utility related conditions of the Work and site that may affect cost, progress, scheduling, or any aspect of performance of the Work and that its Bid reflects all such conditions. CONTRACTOR, by submitting its Bid and executing this Agreement, acknowledges the constructability of the Work under the Plans and Specifications. CONTRACTOR, by its study, excludes and releases COUNTY from any implied warranties, including but not limited to, the "Spearin Doctrine", and acknowledges that the Plans and Specifications are adequate to perform the Work.

(d) CONTRACTOR has made or caused to be made examinations, investigations, tests, and studies as it deems necessary for the performance of the Work at the Contract Price, within the Contract

Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports, or similar data are or will be required by CONTRACTOR for such purposes.

(e) CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports, and data with the terms and conditions of the Contract Documents.

(f) CONTRACTOR has given ENGINEER written notice of all conflicts, errors, or discrepancies that it has discovered in the Contract Documents; and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

(g) CONTRACTOR declares and agrees that the approval or acceptance of any part of the Work or Material by COUNTY, ENGINEER, or any agent relating to compliance with the Contract Documents shall not operate as a waiver by COUNTY of strict compliance with the terms and conditions of the Contract Documents.

(h) CONTRACTOR declares and agrees that COUNTY may require him to repair, replace, restore, or make all things comply with the Contract Documents including all Work or Materials which within a period of two (2) years from Acceptance by COUNTY are found to be defective or fail in any way to comply with the Contract Documents. CONTRACTOR acknowledges that the above two (2) year repair, replace, and restoration period is separate from and additional to CONTRACTOR's warranty that the Work has been completed in compliance with the


Contract Documents. The two (2) year repair, replace, and restoration period is not a limitation upon CONTRACTOR's other warranties or Material and Workmanship Bond.

(i) CONTRACTOR's resident Superintendent at the Work site shall be JOHN BARILE, and this Superintendent only shall be utilized by CONTRACTOR unless otherwise approved by COUNTY Project Manager after following the procedure indicated in the General Conditions.

(j) CONTRACTOR has studied carefully and considered all permit requirements related to performance of the Work. CONTRACTOR declares and agrees that all costs related to performing the Work in compliance with the requirements of all permits at the Contract Price are included in the Contract Price. CONTRACTOR agrees that it shall be solely responsible for payment of all fines and penalties of any nature assessed to CONTRACTOR, COUNTY, or both by any governmental entity, district, or authority, or other jurisdictional entity, relating to all permits required for performance of the Work.

(k) CONTRACTOR acknowledges that the performance of the Work under the Contract Documents fulfills a COUNTY, CONTRACTOR and public purpose. To that end, CONTRACTOR agrees to respond to citizen complaints, related to alleged damage caused by CONTRACTOR's performance of the Work, within ten (10) days of receipt of the complaint from any citizen, ENGINEER, or COUNTY. CONTRACTOR shall utilize the attached "Report of Unsatisfactory Materials and/or Service" form to respond separately to each complaint. When a

complaint is brought to CONTRACTOR by a citizen, CONTRACTOR shall identify the citizen and street address in the "Statement of Problem". Responses and action taken by CONTRACTOR shall specifically identify the problem and specific actions taken. Generic statements such as "addressed the problem" are unacceptable. If CONTRACTOR fails to respond within ten (10) days, COUNTY may take corrective action and deduct the actual costs of corrective action from subsequent Progress Payments or the retainage.

(1) CONTRACTOR acknowledges that county-owned property obtained for performance of the Work within the project limits includes temporary construction easements. In the event that CONTRACTOR fails to perform the Work within the Contract Time, then CONTRACTOR shall be solely responsible for payment of  all costs for additional or extended temporary construction easements. CONTRACTOR authorizes COUNTY to deduct the actual costs of additional or extended temporary construction easements from subsequent Progress Payments or the retainage.

#### **SECTION 8. CONTRACT DOCUMENTS.**


(a) The Contract Documents which comprise the entire agreement between COUNTY and CONTRACTOR are made a part hereof and consist of the following, in order of precedence:

- (1) This Agreement;
- (2) Bid Form, attached hereto as Exhibit B;
- (3) Trench Safety Act, attached hereto as Exhibit C; and



(4) American with Disabilities Act Affidavit, attached hereto as Exhibit D;


(b) As the Project progresses, additional documents shall become part of the Agreement between COUNTY and CONTRACTOR. These documents are:

- (1) Performance Bond;
- (2) Payment Bond;
- (3) Material and Workmanship Bond;
- (4) Specifications;
- (5) Technical Specifications Provided in these Contract Documents;
- (6) General Conditions;
- (7) Supplementary  Conditions including any utility-specific forms provided by County's Utility Division;
- (8) Notice to Proceed;
- (9) Change Orders;
- (10) Certificate of Substantial Completion;
- (11) Certificate of Final Inspection;
- (12) Certificate of Engineer;
- (13) Certificate of Final Completion;
- (14) Contractor's Release;
- (15) Drawings and Plans;
- (16) Supplemental Agreements;
- (17) Contractor's Waiver of Lien (Partial);


- (18) Contractor's Waiver of Lien (Final and Complete);
- (19) Subcontractor/Vendor's Waiver of Lien (Final and Complete);
- (20) Consent of Surety to Final Payment;
- (21) Instructions to Bidders; and
- (22) Contractor's Insurance Requirements, Certificate, and Insurance Policies.

(c) There are no Contract Documents other than those listed above in this Section 8. The Contract Documents may only be altered, amended, or repealed by a modification as provided in the General Conditions.

#### **SECTION 9. LIQUIDATED DAMAGES.**

(a) COUNTY and CONTRACTOR  recognize that time is essential to the performance of this Agreement, and CONTRACTOR recognizes that COUNTY and its traveling public will suffer financial loss if the Work is not substantially completed as described in subsection 14.13 of the General Conditions within the time specified below, plus any extensions thereof allowed in accordance with Section 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or alternative dispute resolution proceeding the damages resulting from inconvenience to the traveling public including traffic loading, intersection operations, costs for time, costs of fuel, and costs for some environmental impacts (excluding actual delay damages which may include, but are not

limited to, engineering fees and inspection costs) suffered by COUNTY if the Work is not completed on time. Accordingly, CONTRACTOR and CONTRACTOR's Surety agree to pay COUNTY as liquidated damages, and not as a penalty, ONE THOUSAND ONE HUNDRED TWENTY-FIVE AND NO/100 DOLLARSQ (\$1,125.00) per day for each day CONTRACTOR exceeds the Contract Time for Substantial Completion until the Work is Substantially Complete. It is agreed that if this Work is not Finally Completed in accordance with the Contract Documents, CONTRACTOR shall pay COUNTY as liquidated damages for delay, and not as a penalty, one-fourth (1/4) of the rate set forth above.

(b) CONTRACTOR shall pay or reimburse, in addition to the liquidated damages specified herein, COUNTY's actual damages which may include, but are not limited to,  expenses for engineering fees and inspection costs arising from CONTRACTOR's failure in meeting either or both the Substantial Completion and Final Completion dates.

(c) The liquidated damages provided in this Section are intended to apply even if CONTRACTOR is terminated, in default, or if CONTRACTOR has abandoned the Work.

#### **SECTION 10. MISCELLANEOUS.**

(a) Terms used in this Agreement which are defined in Section 1 of the General Conditions shall have the meanings indicated in the General Conditions.

(b) No assignments by a party hereto of any rights under or interests in the Contract Documents will be binding on another party

hereto without the written consent of the party sought to be bound, and any such assignment shall be void and of no effect. Specifically, but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

(c) COUNTY and CONTRACTOR each binds itself and its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.



**SECTION 11. CONTRACTOR'S SPECIFIC CONSIDERATION.** In consideration of CONTRACTOR's indemnity agreements as set out in the Contract Documents, COUNTY specifically agrees to pay CONTRACTOR the sum of TWO HUNDRED FIFTY AND NO/100 DOLLARS (\$250.00). CONTRACTOR acknowledges receipt of the specific consideration for CONTRACTOR's indemnification of COUNTY and that the specific consideration is included in the original Contract Price allocated by CONTRACTOR among all pay items, receipt of which is hereby acknowledged.

**SECTION 12. NOTICES.** Whenever either party desires to give notice unto the other including, but not limited to, Contract Claims, it must be given by written notice, hand delivered, signed and dated for

receipt, or be sent by certified United States mail, return receipt requested, addressed to the party for whom it is intended at the place last specified. The place for giving of notice shall remain such until it has been changed by written notice in compliance with the provisions of this Section. For the present, the parties designate the following as the respective places for giving of notice, to wit:

**For COUNTY:**

Public Works  
520 W. Lake Mary Blvd., Suite 200  
Sanford, FL 32773

**For CONTRACTOR:**

Expertech Network Installation, Inc.  
6781 West Sunrise Boulevard  
Plantation, FL 33313

**SECTION 13. CONFLICT OF INTEREST.**



(a) CONTRACTOR agrees that it will not engage in any action that would create a conflict of interest in the performance of its obligations pursuant to this Agreement with COUNTY or which would violate or cause others to violate the provisions of Part III, Chapter 112, Florida Statutes, relating to ethics in government. (See County Personnel Policy 4.10(F).)

(b) CONTRACTOR hereby certifies that no officer, agent or employee of COUNTY has any material interest (as defined in Section 112.312 (15), Florida Statutes, as over 5 percent) either directly or indirectly, in the business of CONTRACTOR to be conducted here and that no such person shall have any such interest at any time during

the term of this Agreement.

(c) Pursuant to Section 216.347, Florida Statutes, CONTRACTOR hereby agrees that monies received from COUNTY pursuant to this Agreement will not be used for the purpose of lobbying the legislature or any other state or federal agency.

**SECTION 14. MATERIAL BREACHES OF AGREEMENT.**

(a) The parties recognize that breaches of the Contract Documents may occur and that remedies for those breaches may be pursued under the Contract Documents. The parties further recognize that the safety of the traveling public is of paramount concern. Therefore, the parties agree that any breach of the Contract Documents related to life safety, including but not limited to, the maintenance of traffic requirements of the Contract Documents, shall be considered a breach of the Contract Documents.

(b) Upon a material breach of the Contract Documents related to life safety as determined by ENGINEER, the ENGINEER shall issue a Stop Work Order suspending the Work or any specific portion of the Work until the conditions are corrected. If the life safety conditions giving rise to the Stop Work Order are not corrected within a reasonable time, as determined by ENGINEER, then the material breach shall entitle COUNTY to terminate this Agreement. The recognition of breaches of the provisions of the Contract Documents related to life safety as material breaches shall not be construed as a limitation on other remedies for breaches or material breaches of the Contract

Documents.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement. All portions of the Contract Documents have been signed or identified by COUNTY and CONTRACTOR or by ENGINEER on their behalf.

ATTEST:

EXPERTECH NETWORK INSTALLATION, INC.

\_\_\_\_\_  
\_\_\_\_\_, Secretary  
(CORPORATE SEAL)


By: \_\_\_\_\_  
DAVID MARINELLI, Vice-President

Date: \_\_\_\_\_

ATTEST:

BOARD OF COUNTY COMMISSIONERS  
SEMINOLE COUNTY, FLORIDA

\_\_\_\_\_  
MARYANNE MORSE  
Clerk to the Board of  
County Commissioners of  
Seminole County, Florida.

By: \_\_\_\_\_  
 CARLTON HENLEY, Chairman

Date: \_\_\_\_\_

For the use and reliance  
of Seminole County only.

Approved as to form and  
legal sufficiency.

As authorized for execution  
by the Board of County Commissioners  
at their \_\_\_\_\_, 20\_\_\_\_  
regular meeting.

\_\_\_\_\_  
County Attorney

Attachments:

- Exhibit A - Technical Specifications
- Exhibit B - Bid Form
- Exhibit C - Trench Safety Act
- Exhibit D - American with Disabilities Act Affidavit

AEC:jjr  
08/03/07

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# **Exhibit A – Technical Specifications**

**CONFORMED DOCUMENTS - JULY 2007**

## **TECHNICAL SPECIFICATIONS** **FERN PARK WATER SYSTEM IMPROVEMENTS - PHASE 1**

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7/31/07



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**DEPARTMENT OF ADMINISTRATIVE SERVICES**  
**PURCHASING AND CONTRACTS DIVISION**



July 9, 2007

To: PROSPECTIVE BIDDERS AND ALL OTHERS CONCERNED

From: Lisa Riner, Senior Procurement Analyst

Subject: **CC-2213-07/LKR – Fern Park Water System Improvements  
Phase I**

Due Date: July 18, 2007 at 2:00 PM EST

**ADDENDUM #1**

**Total pages: 11**

**The information included in this Addendum revises, clarifies, or supplements the specifications and other provisions of the contract documents and is considered part and parcel to the Package.**

This Addendum consists of a total of 3 pages plus the following attached items:

- A. Revised Bid Schedule (3 pages)
- B. Section 02545 "Casing Pipe - Jack & Bore/Open Cut" (4 pages)
- C. Revised Sheet 9 "Plan and Profile" (1 Page)

**CHANGES TO THE PROJECT MANUAL:**

1. Delete the existing Bid Schedule and replace it with the attached revised Bid Schedule, denoted "Revised Per Addendum No. 1". The revision to the Bid Schedule is to Pay Item No. 22 which now allows the crossing of South Street at Highland Drive to be constructed via either directional bore or jack and bore.
2. Section 01010, "Summary of Work": In the first sentence of paragraph 1.02, change the size of the existing water main at U.S. 17-92 at O'Brien Ave. from 12" to 8" (the drawings correctly show this as an 8" water main). In the second sentence of paragraph 1.02, change the size of the new water main from 6" to 8" (the drawings correctly show the new water main is 8").
3. Section 01200, "Special Conditions": Add new paragraph 1.18 - Sequencing of Work, which states, "The Contractor is to first construct the work along U.S. 17-

92 and O'Brien Ave. since this area will also be a part of FDOT's (Hubbard's) roadway construction. All other work sequencing may be of the Contractor's choosing."

4. Add new Section 02545, "Casing Pipe - Jack & Bore/Open Cut" to the Project Manual. Note that the typical casing size for an 8" carrier pipe is 20". For this project, in consideration of the limited right-of-way, the County is allowing use of a minimum steel casing size of 16"; however, it is the Contractor's responsibility, should he choose to jack and bore the crossing at Highland Drive, to ensure the steel casing is large enough to accommodate the carrier pipe, restrainers, and casing spacers. (Per the revised Bid Schedule and Plan Sheet 9, the Contractor has the option of either directional boring or jack and boring the crossing of South St. at Highland Drive).

#### **CHANGES TO THE DRAWINGS:**

5. Delete Sheet 9 "Plan and Profile" and replace it with the attached revised sheet 9. This sheet has been revised to show the crossing of South Street at Highland Drive can be constructed either via directional bore or jack and bore. Also, the following note has been added concerning the crossing: "The Contractor is to protect the existing water main and is to acquire a TCE (temporary construction easement) if necessary for construction".

#### **MISCELLANEOUS**

6. *Question: "Is the County salvaging any equipment from the treatment plant?"*

Response: No, all debris shall be hauled offsite and disposed of by the Contractor.

7. *Question: "Does the Contractor need to obtain a demolition permit?"*

Response: Yes, the Contractor is responsible for obtaining all required permits other than what has been provided by the County in the Project Manual (FDEP permit, FDOT permit and Seminole County R/W use permit).

8. *Question: "Will the Contractor be responsible for installing pipe joint restraints on the existing pipeline along O'Brien?"*

Response: If restraining is necessary, a thrust collar shall be installed at the point of connection per the utility detail sheet. Digging back on existing joints will not be necessary.

9. *Question: "Were any borings conducted?"*

Response: No.

10. *Question: "Is the Contractor required to notify neighborhood home owners?"*

Response: Yes, The Contractor is responsible for notifying homeowners and businesses along the route and adjacent to the plant site of proposed construction, sequencing, and road closures, and is to provide a contact name and number (24 hours/day, 7 days/week) to the homeowners/businesses.

11. *Question: "Will all the trees be removed at the water plant site and along the proposed fence line?"*

Response: The large tree at the center of the site will remain. Smaller trees and sheds along the east side of the site will remain. The trees on the County property along the west side of the site will need to be removed.

12. *Question: "Will the County allow the Contractor to install a casing smaller than 16" at the South St and Highland Ave crossing and utilize grout in lieu of casing spacers?"*

Response: No.

13. *Question: "Was the existing well plugged all the way when abandoned? If not, do we need a licensed well driller?"*

Response: The Contractor is required to conduct his work in accordance with note 4 on the demolition plan which addresses well abandonment / well plugging.

**Failure to acknowledge receipt of this addendum on the submittal may result in disqualification of your bid response.**

**Signature on File**

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**Robert L. Hunter**  
**Procurement Supervisor**

**Bid Schedule**

The Bidder hereby agrees to perform all work as required by the Contract Documents for the following Unit Prices. All work required to be performed by the Contract Documents is to be included within the following Pay Items, inclusive of furnishing all manpower, equipment, materials and performance of all operations relative to construction of the project. Work for which there is not a Pay Item will be considered incidental to the Contract and no additional compensation will be allowed.

BID SCHEDULE					
PAY ITEM NO.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
1	Mobilization	LS	1		
2	Preconstruction Video	LS	1		
3	Maintenance of Traffic	LS	1		
4	Erosion and Sediment Control	LS	1		
5	Clearing and Grubbing	LS	1		
6	Demolition (WTP Site)	LS	1		
7	Restoration (WTP Site)	LS	1		
8	Remove and Reinstall Mailboxes	LS	1		
9	Remove and Replace Landscaping	LS	1		
10	Asphalt Pavement (Open Cut, Remove and Replace)	SY	89		
11	Mill and Resurface Asphalt Pavement, Re-Stripe	SY	561		
12	Asphalt Driveway (Remove and Replace)	SY	35		
13	Concrete Curb (Remove and Replace)	SY	58		
14	Concrete Sidewalk (Remove and Replace)	SY	82		
15	Sodding (Bahia)	SY	728		

NAME OF BIDDER: \_\_\_\_\_

REVISED PER ADD. NO. 1

BID SCHEDULE					
PAY ITEM NO.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
16	Sodding (St. Augustine)	SY	565		
17	Remove Existing Chain Link Fence	LF	170		
18	Type "B" Fence (5 ft)	LF	284		
19	Single Swing Gate (4-ft Opening)	EA	1		
20	Fittings (Water Main)	TN	2.0		
21	8" PE Water Main (Directional Drill)	LF	1144		
22	Crossing at Highland Dr.: 16" PE Casing w/ 8" PE carrier pipe (Directional Drilled) Or 16" Steel Casing w/ 8" PVC or DI Carrier Pipe (Jack and Bored)	LF	50		
23	8" Water Main (PVC or D.I.) (Open Cut)	LF	364		
24	4" Water Main (PVC or D.I.) (Open Cut)	LF	10		
25	Remove Existing Valve (2", 3")	EA	4		
26	8" Gate Valve	EA	9		
27	Fire Hydrant Assembly	EA	4		
28	Water Service Line (1.5") (Open Cut)	LF	108		
29	Water Service Line (1.5") (Directional Drill w/3" PVC Sleeve)	LF	94		
30	Water Service Line (2") (Open Cut)	LF	20		
31	Single Water Service	EA	7		
32	Double Water Service	EA	4		
33	8" x 2" Service Saddle and 2" Gate Valve	EA	2		
34	3" x 3" Tapping Sleeve and Valve	EA	2		
35	6" x 6" Tapping Sleeve and Valve	EA	1		

NAME OF BIDDER: \_\_\_\_\_

REVISED PER ADD. NO. 1

BID SCHEDULE					
PAY ITEM NO.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
36	8" x 8" Tapping Sleeve and Valve	EA	1		
37	Line Stop Assembly (6")	EA	1		
38	Restrained Cap with Concrete Thrust Collar (6")	EA	1		
39	Connect to Existing 2" WM w/ 2" Coupling	EA	1		
40	Connect to Existing 2" Galv. WM at Existing Valve	EA	1		
41	Plug Existing 1" WM with 1" Brass Plug	EA	1		
42	Plug Existing 2" WM with 2" Brass Plug	EA	11		
43	Remove Plug and Connect to Existing 4" WM	EA	1		
44	Temporary Jumper Connection	EA	2		
45	Temporary Blowoff and Sampling Point	EA	6		
<b>TOTAL BASE BID</b>					<b>\$</b>

NAME OF BIDDER: \_\_\_\_\_

REVISED PER ADD. NO. 1

## SECTION 02545 - CASING PIPE - JACK & BORE/OPEN CUT

### PART 1 - GENERAL

#### 1.01 DESCRIPTION

- A. Scope of Work: Furnish all material, equipment, transportation, tools, and labor to install casing pipe by jack and bore or open cut method, masonry plugs, casing spacers, sand fill and all related excavation, backfill, testing and other work for a complete job.

#### 1.02 REFERENCES

- A. American Water Works Association (AWWA) and American National Standards Institute (ANSI) latest edition:
  - 1. AWWA C203 - Coal Tar Protective Coatings and Linings for Steel Water Pipelines, Enamel and Tape, Hot Applications
- B. American Society for Testing and Materials (ASTM) latest edition:
  - 1. ASTM A139 - Electric Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)

#### 1.03 QUALITY ASSURANCE

- A. Pipe Inspection: The Contractor shall obtain from the casing manufacturers a certificate of inspection to the effect that the casings supplied for this Contract have been inspected at the plant and that they meet the requirements of these specifications. All casings shall be subjected to visual inspection at time of delivery by rail or truck, also just before they are lowered into the trench to be laid.

#### 1.04 SUBMITTALS

- A. Certifications: Supplier of casing shall certify conformance to these specifications.
- B. Laying schedule including length, diameter and thickness of casing for each crossing.
- C. Casing spacers.



## 1.05 QUALIFICATIONS

Provide reference documenting successful jack and bore installations by Contractor or, if jacking and boring is to be done by a subcontractor, provide references of subcontractor. Provide at least 3 references showing location of project, diameter of casing, and length of jack and bore. Provide contact names and phone numbers for each reference.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Steel casings shall conform to the requirements of ASTM Designation A139 (straight seam pipe only) Grade "B" with minimum yield strength of 35,000 psi. Pipe shall be seamless or have no more than one (1) longitudinal weld. Field and shop welds of the casing pipes shall conform to the American Welding Society (AWS) standard specifications. Field welds shall be complete penetration, single-bevel groove type joints. Welds shall be air tight and continuous over the entire circumference of the pipe and shall not increase the outside pipe diameter by more than 3/4-inch. A bituminous coating of coal tar varnish or asphalt base paint, one-mil thick shall be applied by the factory. The casing pipes shall have the minimum nominal diameter and wall thickness as shown on the following table. It is the Contractor's responsibility to ensure the steel casing is large enough to accommodate the carrier pipe, restrainers, and casing spacers.

CARRIER PIPE NOMINAL SIZE	CASING PIPE OUTSIDE DIAMETER INCHES	WALL THICKNESS INCHES
8	16" - 20"	0.250

- B. Carrier Pipe Support: Carrier pipes inside of steel casing pipe shall be supported by casing spacers at no more than 10 feet between spacers but not more than manufacturer's recommendations. Each spacer shall be 12 inches wide and manufactured of minimum 14 gauge Type 304 steel or 14 gauge steel with fusion bonded PVC coating. Spacers shall be lined with a 90-mil PVC liner. All stainless nuts and bolts shall be corrosion resistant and compatible with the respective steel band. Each spacer shall have a minimum of 4 runner supports manufactured of a high molecular weight polymer plastic. The runner supports shall be of adequate height to position the carrier pipe in the center of casing with a minimum top clearance of 1/2 inch. All casing spacers larger than a 36-inch diameter

(carrier pipe) shall be factory designed, taking into consideration the weight of the carrier pipe filled with water. All calculations and drawings shall be submitted to the Engineer for review. Casing spacers shall be manufactured by Advanced Products and Systems, Cascade Manufacturing, Pipeline Seal and Insulator or an approved equal.

- C. Pipe Handling: Care shall be taken in loading, transporting, and unloading to prevent damage to the pipe or coatings. Pipe shall not be dropped. All piping shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe or coatings shall be repaired to the satisfaction of the County.

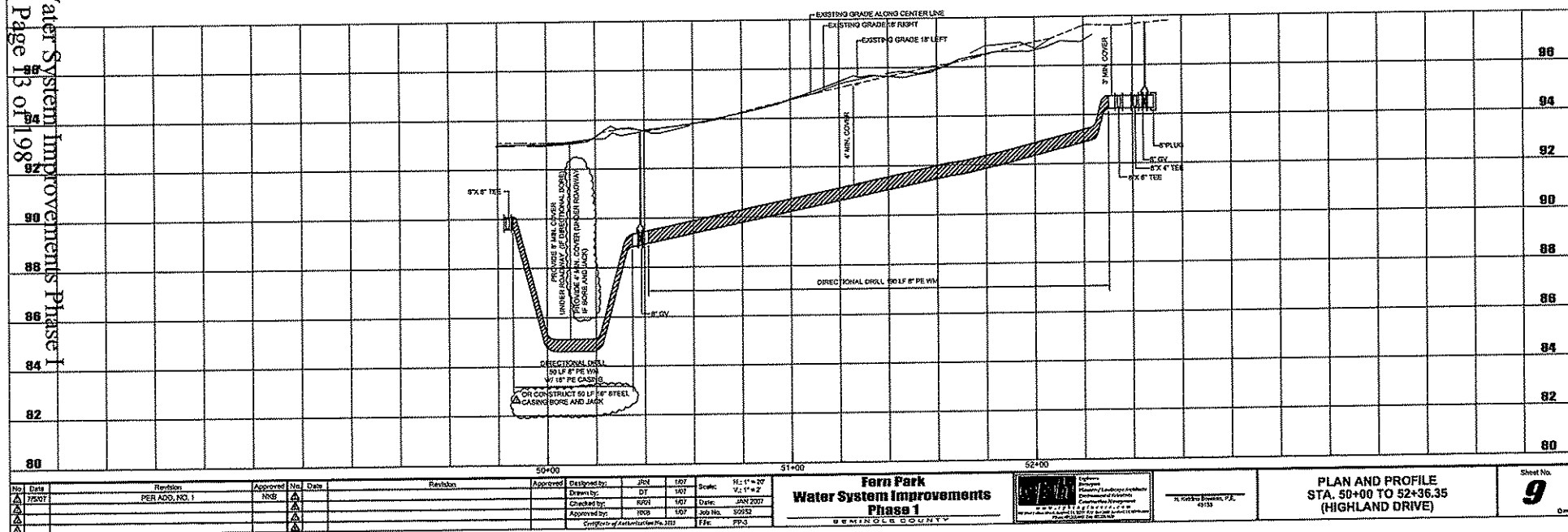
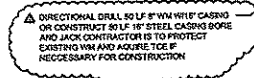
### PART 3 - CONSTRUCTION REQUIREMENTS

- A. Work Coordination: It shall be the Contractor's responsibility to perform the boring and jacking work in strict conformance with the requirements of the agency in whose right of way or easement the work is being performed. Any special requirements of the agency such as insurance, maintenance of traffic, etc. shall be strictly adhered to during the performance of Work.
- B. Dewatering: Dewatering through the casing during construction shall not be permitted. All dewatering methods shall be approved by the County before construction work begins.
- C. Jacking Pit: Excavation adjacent to the roads shall be performed in a manner to adequately support the roads. Bracing, shoring, sheeting or other supports shall be installed as needed. Contractor install suitable reaction blocks for the jacks as required. Jacking operations shall be continuous and precautions shall be taken to avoid interruptions, which might cause the casing to "freeze" in place. Upon completion of jacking operations, the reaction blocks, braces, and all other associated construction materials shall be completely removed from the site.
- D. Correct line and grade shall be carefully maintained. Earth within the casing shall not be removed too close to the cutting edge in order to prevent the formation of voids outside the casing. If voids are formed, they shall be satisfactorily filled by pumping with grout.
- E. Carrier pipe joints inside of steel casing pipe shall be restrained.
- F. Install casing so the ends are a minimum of 4-ft beyond the edge of pavement at road crossings. The sections of steel casing shall be field welded in accordance with the applicable portions of AWWA C206 and AWS D7.0 for field welded pipe joints. Contractor shall wire brush the

welded joints and paint with Inertol Quick Drying Primer 626 by Koppers Company or approved equal. After completion of jacking, Contractor shall clean the interior of the casing of all excess material.

- G. The ends of the casing shall be filled with concrete mortar or rubber type casing end seal, as manufactured by Cascade Waterworks Manufacturing, PSI Model C or Model W or approved equal.
- H. Casing Protection/Damage: Should the casing pipe be damaged, such damaged portion shall be removed and an alternate installation made after approval is obtained by the Owner.
- I. Open Cut: Correct line and grade shall be carefully maintained. Add-on sections of casing pipe shall be full-ring welded to the preceding length, developing watertight total pipe strength joints. Following placement of the casing pipe, masonry plugs shall be installed at each open end. Said plugs shall be suitable for restraining the external earth load, while allowing internal drainage.

END OF SECTION



**SEMINOLE COUNTY ENVIRONMENTAL SERVICES  
DEPARTMENT  
CONSTRUCTION PROJECTS  
72 HOUR REQUEST FOR SYSTEM SHUT DOWN  
(3 WORKING DAYS NOTICE REQUIRED)**

PROJECT NAME AND FC-NUMBER:

GENERAL CONTRACTOR:

CONTRACTOR, SUBCONTRACTOR OR VENDOR PERFORMING WORK:

TYPE OF EQUIPMENT REQUIRING SYSTEM SHUT DOWN:

REFERENCED SECTION OF SPECIFICATIONS OR PAGE OF PLANS :

DATE: \_\_\_\_\_ AND TIME: \_\_\_\_\_ OF NOTICE

DATE: \_\_\_\_\_ AND TIME: \_\_\_\_\_ WORK IS TO BEGIN.

STARTING TIME: \_\_\_\_\_ COMPLETION TIME: \_\_\_\_\_

\*\*\*\*\*  
THE FOLLOWING ARE PEOPLE TO BE NOTIFIED BY CONTRACTOR AS NEEDED AND  
PRIOR TO COMMENCEMENT OF WORK.  
\*\*\*\*\*

SEMINOLE COUNTY ENVIRONMENTAL SERVICES DEPARTMENT PEI OFFICE  
PHONE #407-665-2014 FAX #407-665-2019  
ENGINEER OF RECORD:  
ELECTRICAL ENGINEER:  
MECHANICAL ENGINEER:  
STRUCTURAL ENGINEER:  
INSPECTION/ENGINEER :

\*\*\*\*\*  
THE FOLLOWING ARE TO BE NOTIFIED BY SEMINOLE COUNTY ENVIRONMENTAL  
SERVICES DEPARTMENT CONSTRUCTION PROJECT MANAGER AS NEEDED AND PRIOR  
TO COMMENCEMENT OF WORK  
\*\*\*\*\*

SEMINOLE COUNTY WATER SECTION:  
SEMINOLE COUNTY WASTE WATER SECTION:  
SEMINOLE COUNTY MAINTENANCE SECTION:  
OTHERS AS REQUIRED:

\*\*\*\*\*  
CONFIRMATION BY SEMINOLE COUNTY ENVIRONMENTAL SERVICES DEPARTMENT  
CONSTRUCTION PROJECT  
MANAGER:  
CONFIRMATION BY INSPECTION/ENGINEER :

**SEMINOLE COUNTY ENVIRONMENTAL SERVICES  
DEPARTMENT  
CONSTRUCTION PROJECTS  
72 HOUR REQUEST FOR EQUIPMENT STARTUP  
(3 WORKING DAYS NOTICE REQUIRED)**

**PROJECT NAME AND FC-NUMBER:**

**FC NUMBER (IF APPLICABLE):**

**GENERAL CONTRACTOR:**

**CONTRACTOR, SUBCONTRACTOR OR VENDOR PERFORMING WORK:**

**TYPE OF EQUIPMENT REQUIRING SYSTEM STARTUP:**

**REFERENCED SECTION OF SPECIFICATIONS OR PAGE OF PLANS :**

**DATE: \_\_\_\_\_ AND TIME: \_\_\_\_\_ OF NOTICE**

**DATE: \_\_\_\_\_ AND TIME: \_\_\_\_\_ WORK IS TO BEGIN**

**STARTING TIME: \_\_\_\_\_ COMPLETION TIME: \_\_\_\_\_**

\*\*\*\*\*  
**THE FOLLOWING ARE PEOPLE TO BE NOTIFIED BY CONTRACTOR AS NEEDED AND  
PRIOR TO COMMENCEMENT OF WORK.**  
\*\*\*\*\*

**SEMINOLE COUNTY ENVIRONMENTAL SERVICES DEPARTMENT**

**PEI OFFICE PHONE # 407-665-2014 FAX # 407-665-2019:**

**ENGINEER OF RECORD:**

**ELECTRICAL ENGINEER:**

**MECHANICAL ENGINEER:**

**STRUCTURAL ENGINEER:**

**INSPECTION/ENGINEER :**

\*\*\*\*\*  
**THE FOLLOWING ARE TO BE NOTIFIED BY SEMINOLE ENVIRONMENTAL SERVICES  
DEPARTMENT CONSTRUCTION PROJECT MANAGER AS NEEDED AND PRIOR TO  
COMMENCEMENT OF WORK.**  
\*\*\*\*\*

**SEMINOLE COUNTY WATER SECTION:**

**SEMINOLE COUNTY WASTE WATER SECTION:**

**SEMINOLE COUNTY MAINTENANCE SECTION:**

**OTHERS AS REQUIRED:**

\*\*\*\*\*  
**CONFIRMATION BY SEMINOLE ENVIRONMENTAL SERVICES DEPARTMENT  
PROJECT \_\_\_\_\_ MANAGER:**

**CONFIRMATION BY INSPECTION/ENGINEER :**

**LIFTSTATION START-UP FOR SEMINOLE COUNTY UTILITIES**

Lift Station Name \_\_\_\_\_

Service Address \_\_\_\_\_

Service Area ☐ Private ☐ Seminole County ☐ Other /City \_\_\_\_\_

Project \_\_\_\_\_ FI.Power meter # \_\_\_\_\_

Contractor \_\_\_\_\_ Engineer \_\_\_\_\_

Inspected by \_\_\_\_\_ Inspection date \_\_\_\_\_

**I Installation to Grade**

Wet well \_\_\_\_\_ Valve box \_\_\_\_\_ Gate Valve \_\_\_\_\_

Emerg. Pumpout \_\_\_\_\_ Onsite water \_\_\_\_\_ Meter # \_\_\_\_\_

B.F.P. Cert. \_\_\_\_\_ Serial # \_\_\_\_\_

**II Controls**

Height \_\_\_\_\_ Explosion proof box \_\_\_\_\_ Puddy & 1/4" cheico \_\_\_\_\_

Support caps \_\_\_\_\_ Lead/Lag/Off \_\_\_\_\_ Alternator \_\_\_\_\_

Alarm \_\_\_\_\_ Adjustment \_\_\_\_\_

**III Wet Well Piping**

Ck. Valves \_\_\_\_\_ Size \_\_\_\_\_ No. of Inverts \_\_\_\_\_

Depth \_\_\_\_\_ Width \_\_\_\_\_ Leaks \_\_\_\_\_

Bottom slope \_\_\_\_\_ Grouting \_\_\_\_\_ Rotation \_\_\_\_\_

Seating \_\_\_\_\_ Clearance \_\_\_\_\_ Lift cable \_\_\_\_\_

**IV Pumps**

	Design	Pump #1	Pump #2
Horsepower	_____	_____	_____
Voltage	_____	_____	_____
Phase	_____	_____	_____
Amperage	_____	_____	_____
G.P.M.	_____	_____	_____
T.D.H.	_____	_____	_____
Make	_____	_____	_____

## SECTION 01010 - SUMMARY OF WORK

### PART 1 - GENERAL

1.01 LOCATION OF WORK: The Work is located in three areas between South Street and O'Brien Road, west of US 17-92, in the vicinity of Casselberry / Fern Park Florida. The first Work area is along the south side of O'Brien Avenue between US 17-92 and Jaffa Drive. The second Work area is along the north and south sides of South Street between Driftwood Drive and Lauren Court, and along Highland Drive south of South Street. The third Work area is at the abandoned Fern Park Water Treatment Plant located directly behind the residence located at 131 East Lauren Court.

1.02 DESCRIPTION OF WORK: Connect to the existing 8" water main at the intersection of US 17-92 and O'Brien Avenue, and construct approximately 236-ft of new 8" water main (approximately 180-ft will be directional bore installation) along the south side of O'Brien Avenue to Jaffa Drive. In addition, construct approximately 1,110-ft of new 8" water main (approximately 820-ft will be directional bore installation) along South Street, located between Driftwood Drive and Lauren Court and approximately 110-ft of new 8" water main (approximately 65-ft will be directional bore installation) along Highland Drive, extending south of South Street. At the abandoned Fern Park Water Treatment Plant, cut and cap the potable well, plug the active water main, demolish the block building and all its appurtenances, remove and dispose of all materials, replace existing site fencing, grass all disturbed areas.

1.03 MATERIALS PURCHASED BY SEMINOLE COUNTY: None.

1.04 MATERIALS TO BE PURCHASED BY THE CONTRACTOR AND DELIVERED TO THE COUNTY: Marker ball locator device.

END OF SECTION



## SECTION 01040 - COORDINATION

### PART 1 - GENERAL

#### 1.01 GENERAL CONDITIONS

- A. Coordinate the work of all trades so that each will have sufficient space and time within which to work properly and efficiently.
- B. The Contractor shall review, approve, and submit with reasonable promptness and in such sequence as to cause no delay in his work or the work of subcontractors, all submittals required by the Contract Documents.
- C. The Contractor shall provide for the coordination of his work with the required work of public agencies and utilities which includes but is not limited to:
  - 1. Public Services
  - 2. Equipment supplied by Seminole County.
- D. Changes in the intended design of the project as a result of improperly coordinated construction work will not be tolerated. Delays in the work caused by rejections of installed materials due to improper coordination, and as otherwise specified, will not be considered valid justification for extensions of contract time.

END OF SECTION

## SECTION 01060 - REGULATORY REQUIREMENTS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General and Special Conditions apply to the Work specified in this section.

#### 1.02 SPECIFIED CODES

- A. The site work is based on the latest edition of the Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, hereinafter referred to as Florida D.O.T. Specifications or D.O.T. Specs, and requirements of Seminole County.
- B. The design of the Work is based on the requirements of the Florida Department of Environmental Protection, the National Fire Protection Association, and Seminole County.
- C. The Contractor shall ensure the Work complies to the aforementioned codes and regulations as they apply to the project whether or not specifically referenced elsewhere.

#### 1.03 REFERENCE STANDARDS

- A. Except as otherwise required by Paragraph 1.02, all products and workmanship shall conform to best quality materials and practices recognized by agencies, associations, councils, etc., specified in individual sections.
- B. In the absence of specified agencies, associations, councils, etc., the Contractor shall conform to the requirements of the most widely recognized standards for each particular portion of the Work.

#### 1.04 PROJECT PERMITS

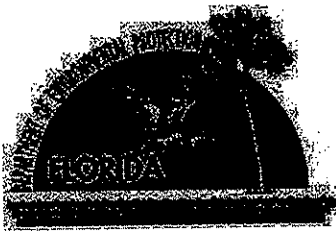
- A. The County has obtained the following permits for the construction, copies of which follow this section:
  - 1. Florida Department of Environmental Protection Water Permit No. 59-0078769-206, (Fern Park - South Street / Highland Drive Connection), issued 3/27/07.

4/18/07

01060 - 1

2. Florida Department of Environmental Protection Water Permit No. 59-0078769-207, (Fern Park - O'Brien Avenue Water Main Construction), issued 3/27/07.
  3. Florida Department of Transportation Utility Permit No. 06H593-0324, issued 11/21/06.
  4. Seminole County Engineering Division Construction Permit No. 92179, approved 4/18/07.
- B. The Contractor shall review and become familiar with all permits for the Project, complete with all conditions, attachments, exhibits and permit modifications. A copy of all permits for the Project shall be maintained by the Contractor at the project site, and shall be available for review upon request
- C. The Contractor shall be fully responsible to abide by all provisions of the permits. The Contractor is responsible for the selection, implementation and operation of all measures required by the permits, including the maintenance of said measures as necessary during construction. No additional compensation will be allowed for any work associated with permit requirements.

END OF SECTION



# Florida Department of Environmental Protection

Central District  
3319 Maguire Boulevard, Suite 232  
Orlando, Florida 32803-3767

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773

Permit Number: 59-0078769-206  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-South Street/Highland Drive  
Connection

Attention: Gary Lee Rudolph, Utilities Manager

This permit is issued under the provisions of Chapter 403, *Florida Statutes*, and Rule 62-555, *Florida Administrative Code*, (F.A.C.). The above named permittee is hereby authorized to perform the work shown on the application and approved drawing, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

Extension of the Seminole County-Southeast water distribution system by the Construction of approximately 1,100 feet of 8-inch mains on South Street from Lauren Court easterly to Driftwood Drive with a southerly extension on Highland Drive.

This permit does not pertain to any wastewater, storm water or dredge and fill aspects of the project. This permit expires 5 years after the date of issuance.

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773  
Attention: Gary Lee Rudolph, Utilities Manager

Permit Number: 59-0078769-206  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-South Street/Highland Drive  
Connection

#### GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violations of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in this permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:
  - (a) Have access to and copy any records that must be kept under conditions of the permit;
  - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
  - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any conditions or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
  - (a) A description of and cause of noncompliance; and
  - (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages, which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773  
Attention: Gary Lee Rudolph, Utilities Manager

Permit Number: 59-0078769-206  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-South Street/Highland Drive  
Connection

GENERAL CONDITIONS

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Rule 62-4.120 and 62-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
  - ☐ Determination of Best Available Control Technology (BACT)
  - ☐ Determination of Prevention of Significant Deterioration (PSD)
  - ☐ Certification of compliance with state Water Quality Standards (Section 401, PL 92-500)
  - ☐ Compliance with New Source Performance Standards
14. The permittee shall comply with the following:
  - (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date the sample, measurement, report, or application unless otherwise specified by Department rule.
  - (c) Records of monitoring information shall include:
    1. the date, exact place, and time of sampling or measurements;
    2. the person responsible for performing the sampling or measurements;
    3. the dates analyses were performed;
    4. the person responsible for performing the analyses;
    5. the analytical techniques or methods used;
    6. the results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773

Permit Number: 59-0078769-206  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-South Street/Highland Drive  
Connection

Attention: Gary Lee Rudolph, Utilities Manager

#### SPECIFIC CONDITIONS:

##### Clearance of the Project

1. A Clearance Letter must be issued by the DEP Central District Potable Water program before placement of any public water system components constructed or altered under this permit into operation for any purpose other than disinfection, testing for leaks, or testing equipment operation. Failure to do so will result in enforcement action against the permittee. This does not prohibit the permittee from cutting into existing water mains and returning the water mains to operation in accordance with Rule 62-555.340(5), F.A.C. without the Department's approval. To obtain clearance letter, the engineer of record must submit the following:
  - (1) Completion of the enclosed "Request for Letter of Release to Place Water Supply System into Service" [DEP Form 62-555.900(9), F.A.C.];
  - (2) A copy of this permit; and
  - (3) A copy of satisfactory bacteriological sample results taken on two consecutive days from locations to be designated by the engineer.  
The engineer shall submit a sampling plan covering the mains in the entire project with the first certification of completion. The plan shall include locations on the proposed piping at all points of connection to the existing main, at all terminal ends, on straight runs of pipes between each two isolation valves and at the beginning and end of lines for each segment to be partially completed. The maximum interval between two sampling locations shall be 1,000 feet. No hydrant shall be used for sample collection.
  - (4) A signed and sealed statement by the engineer that the non-complying detail entitled "Minimum Horizontal and Vertical Separation Requirements" on Sheet No. 3 of the drawings has not been used in the project. The minimum pipe separation requirements per 62-555.314 (1), (2), (3) and (4) must be adhered to without exception unless the engineer's justification has been accepted by DEP in advance of implementation for a specific case and location. No across-the-board authorization of exception shall be provided.
2. **NOTE TO THE UTILITY:** Pursuant to Rule 403.859(6), Florida Statutes, do not provide water service to this project (other than flushing/testing) until the Department of Environmental Protection has issued a letter of clearance or the utility, shall be subject to enforcement action.

##### Permit Transfer

3. The permittee will promptly notify the Department upon sale or legal transfer of the permitted facility. In accordance with General Condition #11 of this permit, this permit is transferable only upon Department approval. The new owner must apply, by letter, for a transfer of permit within 30 days.
4. The permittee shall retain a Florida-licensed professional engineer in accordance with subsection 62-555.530(3), F.A.C. to take responsible charge of inspecting construction of the project for the purpose of determining in general if the construction proceeds in compliance with the permit, including the approved preliminary design report or drawings and specifications, for the project.
5. The permittee shall have complete record drawings produced for the project in accordance with Rule 62-555.530(4), F.A.C.

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773

Attention: Gary Lee Rudolph, Utilities Manager

Permit Number: 59-0078769-206  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-South Street/Highland Drive  
Connection

**SPECIFIC CONDITIONS:**

6. The permittee shall provide an operational maintenance manual for the new or altered treatment facilities to fulfill the requirements under Rule 62-555.350(13), F.A.C.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION



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Richard S. Lott, P.G., P.E.  
Program Manager, Drinking Water

ISSUED March 27, 2007

RSL:ohm:jo

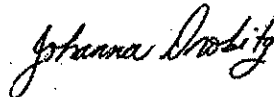
Copies furnished to:  
[grudolph@seminolecountyfl.gov](mailto:grudolph@seminolecountyfl.gov); [kbowman@cphengineers.com](mailto:kbowman@cphengineers.com)

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certified that this NOTICE OF PERMIT ISSUANCE and all copies were sent by E-Mail before the close of business on March 27, 2007 to the listed persons.

**FILING AND ACKNOWLEDGMENT**

FILED, on this date, under Section 120.52(7), *Florida Statutes*, with the designated Department Clerk, receipt of which is hereby acknowledged.



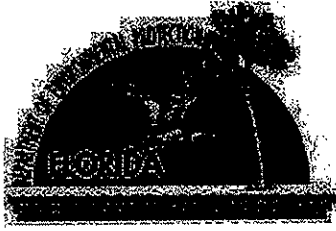
Clerk

March 27, 2007

Date

PAGE 5 of 5





# Florida Department of Environmental Protection

Central District  
3319 Maguire Boulevard, Suite 232  
Orlando, Florida 32803-3767

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773

Permit Number: 59-0078769-207  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-O'Brien Avenue

Attention: Gary Lee Rudolph, Utilities Manager

This permit is issued under the provisions of Chapter 403, *Florida Statutes*, and Rule 62-555, *Florida Administrative Code*, (F.A.C.). The above named permittee is hereby authorized to perform the work shown on the application and approved drawing, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

Extension of the Seminole County-Southeast water distribution system by the construction of approximately 240 feet of 12-inch mains on O'Brien Avenue west of US 17-92.

This permit does not pertain to any wastewater, storm water or dredge and fill aspects of the project. This permit expires 5 years after the date of issuance.

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773

Permit Number: 59-0078769-207  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-O'Brien Avenue

Attention: Gary Lee Rudolph, Utilities Manager

#### GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violations of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in this permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:
  - (a) Have access to and copy any records that must be kept under conditions of the permit;
  - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
  - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any conditions or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
  - (a) A description of and cause of noncompliance; and
  - (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages, which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773

Permit Number: 59-0078769-207  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-O'Brien Avenue

Attention: Gary Lee Rudolph, Utilities Manager

#### GENERAL CONDITIONS

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Rule 62-4.120 and 62-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. ~~This permit also constitutes:~~
  - ~~( ) Determination of Best Available Control Technology (BACT)~~
  - ~~( ) Determination of Prevention of Significant Deterioration (PSD)~~
  - ~~( ) Certification of compliance with state Water Quality Standards (Section 401, PL 92-500)~~
  - ~~( ) Compliance with New Source Performance Standards~~
14. The permittee shall comply with the following:
  - (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date the sample, measurement, report, or application unless otherwise specified by Department rule.
  - (c) Records of monitoring information shall include:
    1. the date, exact place, and time of sampling or measurements;
    2. the person responsible for performing the sampling or measurements;
    3. the dates analyses were performed;
    4. the person responsible for performing the analyses;
    5. the analytical techniques or methods used;
    6. the results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773

Permit Number: 59-0078769-207  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-O'Brien Avenue

Attention: Gary Lee Rudolph, Utilities Manager

#### SPECIFIC CONDITIONS:

##### Clearance of the Project

1. A Clearance Letter must be issued by the DEP Central District Potable Water program before placement of any public water system components constructed or altered under this permit into operation for any purpose other than disinfection, testing for leaks, or testing equipment operation. Failure to do so will result in enforcement action against the permittee. This does not prohibit the permittee from cutting into existing water mains and returning the water mains to operation in accordance with Rule 62-555.340(5), F.A.C. without the Department's approval. To obtain clearance letter, the engineer of record must submit the following:
  - (1) Completion of the enclosed "Request for Letter of Release to Place Water Supply System into Service" [DEP Form 62-555.900(9), F.A.C.];
  - (2) A copy of this permit; and
  - (3) A copy of satisfactory bacteriological sample results taken on two consecutive days from locations to be designated by the engineer.  
The engineer shall submit a sampling plan covering the mains in the entire project with the first certification of completion. The plan shall include locations on the proposed piping at all points of connection to the existing main, at all terminal ends, on straight runs of pipes between each two isolation valves and at the beginning and end of lines for each segment to be partially completed. The maximum interval between two sampling locations shall be 1,000 feet. No hydrant shall be used for sample collection.
  - (4) A signed and sealed statement by the engineer that the non-complying detail entitled "Minimum Pipe Separation Requirements" on Sheet No. 3 of the drawings has not been used in the project. Any exception to the requirements per 62-555.314 (1), (2), (3) and (4) must first be justified by the engineer (not the contractor) for DEP approval of implementation at a specific case and location.
2. ***NOTE TO THE UTILITY: Pursuant to Rule 403.859(6), Florida Statutes, do not provide water service to this project (other than flushing/testing) until the Department of Environmental Protection has issued a letter of clearance or the utility, shall be subject to enforcement action.***

##### Permit Transfer

3. The permittee will promptly notify the Department upon sale or legal transfer of the permitted facility. In accordance with General Condition #11 of this permit, this permit is transferable only upon Department approval. The new owner must apply, by letter, for a transfer of permit within 30 days.
4. The permittee shall retain a Florida-licensed professional engineer in accordance with subsection 62-555.530(3), F.A.C. to take responsible charge of inspecting construction of the project for the purpose of determining in general if the construction proceeds in compliance with the permit, including the approved preliminary design report or drawings and specifications, for the project.
5. The permittee shall have complete record drawings produced for the project in accordance with Rule 62-555.530(4), F.A.C.

Permittee:  
Seminole County Environmental Services  
Department  
500 West Lake Mary Boulevard  
Sanford, FL 32773

Attention: Gary Lee Rudolph, Utilities Manager

Permit Number: 59-0078769-207  
Expiration Date: March 13, 2012  
County: Seminole  
Utility: Seminole County-Southeast  
Project: Fern Park-O'Brien Avenue

**SPECIFIC CONDITIONS:**

6. The permittee shall provide an operational maintenance manual for the new or altered treatment facilities to fulfill the requirements under Rule 62-555.350(13), F.A.C.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION



Richard S. Lott, P.G., P.E.  
Program Manager, Drinking Water

ISSUED March 27, 2007

RSL:ohm:jo

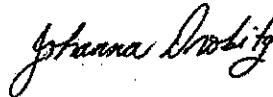
Copies furnished to:  
[grudolph@seminolecountyfl.gov](mailto:grudolph@seminolecountyfl.gov); [kbowman@cphengineers.com](mailto:kbowman@cphengineers.com)

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certified that this NOTICE OF PERMIT ISSUANCE and all copies were sent by E-Mail before the close of business on March 27, 2007 to the listed persons.

**FILING AND ACKNOWLEDGMENT**

FILED, on this date, under Section 120.52(7), *Florida Statutes*, with the designated Department Clerk, receipt of which is hereby acknowledged.



Clerk

March 27, 2007

Date

PAGE 5 of 5

## UTILITY PERMIT

NOV 28 2006

FORM 710-010-85  
UTILITIES  
OGC - 08/04

PERMIT NO.: 06H593-0324	SECTION NO.: 77010	STATE ROAD 15-600	COUNTY SEMINOLE
FDOT construction is <u>proposed or underway</u> .	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Financial Project ID: 414779-152-01
Is this work related to an approved Utility Work Schedule?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes, Document Number:
PERMITTEE:	Seminole County Environmental Services Department		
ADDRESS:	500 West Lake Mary Blvd.		TELEPHONE NUMBER: (407) 665 - 2721
CITY/STATE/ZIP:	32773		
The above PERMITTEE requests permission from the State of Florida Department of Transportation, hereinafter called the FDOT, to construct, operate and maintain the following: Seminole County is proposing to connect to the existing 12" Water Main at the intersection of U.S. 17-92 and O'Brien Avenue (SW corner). Construction within the FDOT Right of Way includes 12" x 8" tapping Sleeve and Valve and approximately 15 ft. of 8" PVC or D.I. water main pipe.			
FROM: 0.738 / STA 138+00	TO:		
Submitted for the PERMITTEE by:	Katrina Bowman, P.E. - Vice President	<i>K. Katrina</i>	7/14/06
	Name and Title (Typed or Printed Legibly)	Signature	Date

- The Permittee declares that prior to filing this application, the location of all existing utilities that it owns or has an interest in, both aerial and underground, are accurately shown on the plans and a letter of notification was mailed on 10/17/05 to the following utilities known to be involved or potentially impacted in the area of the proposed installation: AT&T Communication, City of Altamonte Springs, City of Casselberry, Bright House Networks, Progress Energy, Seminole County Environmental Services Dept, Teco - Peoples Gas, Bellsouth Telecommunications, and Sprint.
- The local Maintenance or Resident Engineer, hereafter referred to as the FDOT Engineer, shall be notified a minimum of forty eight (48) hours in advance prior to starting work and again immediately upon completion of work. The FDOT's Engineer is DAVE JACKSON, located at OVIDO MAINT., Telephone Number 407-977-6530. The Permittee's employee responsible for MOT is \_\_\_\_\_, Telephone Number \_\_\_\_\_. (This name may be provided at the time of the forty eight (48) hour advance-notice prior to starting work).
- All work, materials, and equipment shall be subject to inspection and approval by the FDOT Engineer.
- All plans and installations shall conform to the requirements of the FDOT's UAM in effect as of the date this permit is approved by FDOT, and shall be made a part of this permit. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
- This Permittee shall commence actual construction in good faith within 120 days after issuance of permit, and shall be completed within 180 days after the permitted work has begun. If the beginning date is more than sixty (60) days from the date of permit approval, the Permittee must review the permit with the FDOT Engineer to make sure no changes have occurred to the Transportation Facility that would affect the permitted construction.
- The construction and maintenance of such utility shall not interfere with the property and rights of a prior Permittee.
- It is expressly stipulated that this permit is a license for permissive use only and that the placing of utilities upon public property pursuant to this permit shall not operate to create or vest any property right in said holder, except as provided in executed subordination and Railroad Utility Agreements.
- Pursuant to Section 337.403(1), Florida Statutes, any utility placed upon, under, over, or along any public road or publicly owned rail corridor that is found by FDOT to be unreasonably interfering in any way with the convenient, safe, or continuous use, or maintenance, improvement, extension, or expansion, of such public road or publicly owned rail corridor shall, upon thirty (30) days written notice to the utility or its agent by FDOT, be removed or relocated by such utility at its own expense except as provided in paragraphs (a) and (b), and except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements, and shall apply to all successors and assigns for the permitted facility.
- It is agreed that in the event the relocation of said utilities are scheduled to be done simultaneously with the FDOT's construction work, the Permittee will coordinate with the FDOT before proceeding and shall cooperate with the FDOT's contractor to arrange the sequence of work so as not to delay the work of the FDOT's contractor, defend any legal claims of the FDOT's contractor due to delays caused by the Permittee's failure to comply with the approved schedule, and shall comply with all provisions of the law and the FDOT's current UAM. The Permittee shall not be responsible for delay beyond its control.
- In the case of non-compliance with the FDOT's requirements in effect as of the date this permit is approved, this permit is void and the facility will have to be brought into compliance or removed from the R/W at no cost to the FDOT, except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
- It is understood and agreed that the rights and privileges herein set out are granted only to the extent of the State's right, title and interest in the land to be entered upon and used by the Permittee, and the Permittee will, at all times, and to the extent permitted by law, assume all risk of and indemnify, defend, and save harmless the State of Florida and the FDOT from and against any and all loss, damage, cost or expense arising in any manner on account of the exercise or attempted exercises by said Permittee of the aforesaid rights and privileges.
- During construction, all safety regulations of the FDOT shall be observed and the Permittee must take measures, including placing and the display of safety devices that may be necessary in order to safely conduct the public through the project area in accordance with the Federal MUTCD, as amended for highways, the requirements of the Standard Application Package for railways, including flagging services and Railroad Protective Insurance or acceptable alternative, when applicable, and the FDOT's Design Standards, Indexes 600-670, and Standard Specifications for Road and Bridge Construction, Section 102, as amended by the UAM. When a Utility deems it necessary to conduct Traffic Control activities and methods significantly different from those addressed in the above references, the Utility must submit an alternative plan signed and sealed by a licensed Florida professional engineer qualified to develop TCP in accordance with the provisions of Chapter 8 of the UAM.
- Should the Permittee be desirous of keeping its utilities in place and out of service, the Permittee, by execution of this permit acknowledges its present and continuing ownership of its utilities located between Jaffa Drive and U.S. 17-92, along O'Brien Ave. N/A within the FDOT's R/W as set forth above. Whenever the Permittee removes its facilities, it shall be at the Permittee's sole cost and expense. The Permittee, at its sole expense, shall promptly remove said out of service utilities whenever the FDOT determines said removal is in the public interest.
- In the event contaminated soil is encountered by the Utility or anyone within the permitted construction limits, the Utility shall immediately cease work and notify the FDOT. The FDOT shall coordinate with the appropriate agencies and notify the Permittee of any suspension or revocation of the permit until contamination assessment and remediation, as appropriate under Rule Chapters 62-770 and 62-730 Florida Administrative Code, has progressed to a state that all environmental regulatory agencies having jurisdiction have approved the site of the contamination for resumption of work.
- For any excavation, construction, maintenance, or support activities performed by or on behalf of the FDOT, within its R/W, the Permittee may be required by

## UTILITY PERMIT

the FDOT or its agents to perform the following activities with respect to a Permittee's facilities: physically expose or direct exposure of underground facilities, provide any necessary support to facilities and/or cover aerial facilities as deemed necessary.

16. Pursuant to Section 337.401(2), Florida Statutes, the permit shall require the permit holder to be responsible for damage resulting from the issuance of the permit. The FDOT may initiate injunctive proceedings as provided in s.120.69 to enforce provisions of this subsection or any rule or order issued or entered into pursuant thereto.
17. Pursuant to Section 337.402, Florida Statutes, when any public road or publicly owned rail corridor is damaged or impaired in any way because of the installation, inspection, or repair of a utility located on such road or publicly owned rail corridor, the owner of the utility shall, at his or her own expense, restore the road or publicly owned rail corridor to its original condition before such damage. If the owner fails to make such restoration, the authority is authorized to do so and charge the cost thereof against the owner under the provisions of s.337.404.
18. The Permittee shall comply with all provisions of Chapter 556, Florida Statutes, Underground Facilities Damage Prevention and Safety Act.
19. Special FDOT instructions: SEE ATTACHED

It is understood and agreed that commencement by the Permittee is acknowledgment and acceptance of the binding nature of all the above listed permit conditions and special instructions.

20. Receipt of this permit acknowledges responsibility to comply with Section 119.07(3), Florida Statutes, and UAM Chapter 4.5.2, regarding Exempt Documents and Security System Plans Requests.
21. By the below signature, the Permittee hereby represents that no change to the FDOT's standard Utility Permit form, as incorporated by reference into Rule 14-46.001, for this Utility Permit has been made which has not been previously called to the attention of the FDOT (and signified to by checking the appropriate box below) by a separate attached written document showing all changes and the written and dated approval of the FDOT Engineer. Are there attachments reflecting change/s to the standard form? ☒ NO ☐ YES If Yes, \_\_\_\_\_ pages are attached.

PERMITTEE	Gary Lee Rudolph - Utilities Manager	SIGNATURE	<i>Gary Lee Rudolph</i>	DATE:	11/13/06
	Name & Title of Authorized Permittee or Agent (Typed or Printed Legibly)				
APPROVED BY:	<i>James E. Wood, Jr.</i>				ISSUE DATE: 2/1/06
	District Maintenance Engineer or Designee				

**JAMES E. WOOD, JR., P.E.**  
MAINTENANCE ENGINEER

UTILITY PERMIT FINAL INSPECTION CERTIFICATION

**STAN MANN**  
CONTRACTS/PERMITS ENGINEER

DATE:	
DATE WORK STARTED:	
DATE WORK COMPLETED:	
INSPECTED BY:	
	(Permittee or Agent)
CHANGE APPROVED BY:	
	District Maintenance Engineer or Designee
DATE:	

I the undersigned Permittee do hereby CERTIFY that the utility construction approved by the above numbered permit was inspected and installed in accordance with the approved plans made a part of this permit and in accordance with the FDOT's current UAM. All plan changes have been approved by the FDOT's Engineer and are attached to this permit. I also certify that the work area has been left in as good or better condition than when the work was begun.

PERMITTEE:	SIGNATURE:	DATE:
Name & Title of Authorized Permittee or Agent (Typed or Printed Legibly)		

CC: District Permit Office  
Permittee

## **NOTICE**

**THE APPROVED PERMIT AND PLANS  
MUST BE ON THE JOBSITE BEFORE THE  
CONTRACTOR WILL BE ALLOWED TO  
WORK WITHIN THE DOT R/W, BE IT  
DRIVEWAY, DRAINAGE OR UTILITY  
IMPROVEMENTS.**

**THE D.O.T. INSPECTION STAFF WILL  
NOT ALLOW ANY WORK TO BEGIN OR  
CONTINUE IF ALL ACTUAL D.O.T.  
PERMITS ARE NOT ON SITE.**



**THIS PERMIT AND ATTACHEMENTS SHALL BE AT THE JOB SITE  
AT ALL TIMES OF CONSTRUCTION WITHIN THE FDOT RIGHT-OF-WAY**

**APPLICABLE REQUIREMENTS SHOWN BELOW ARE PART OF THE PERMIT.**

For work located within areas of FDOT Right-of-Way having FDOT maintained Roadway Lighting Systems and/or lighted roadway signs, the Permittee shall notify the Metro Orlando North Maintenance Office (407) 977-6530, for utility locations three (3) business days prior to construction.

Where FDOT signs, reflectors or other components thereof, will interfere with construction the Permittee shall notify the Metro Orlando North Maintenance Office (407) 977-6530, (or the office the local FDOT Construction Resident Engineer, if applicable), 48 hours in advance of starting work. All signs, reflectors, etc. will be moved or relocated by FDOT forces or the Permittee if so directed by FDOT. Any signs, reflectors, etc. damaged, destroyed, removed or relocated without FDOT authorization will be replaced or relocated as directed by FDOT at the expense of the Permittee.

Notify Sunshine One Call, (800) 432-4770, for utility locations in advance of excavations.

**FLORIDA STATUTE 553.851 REQUIRES PERMITTEE TO NOTIFY THE LOCAL GAS UTILITY A MINIMUM OF 48 HOURS PRIOR TO EXCAVATION:**

Florida Public Utilities	(386) 668-2600
Florida Gas Transmission	(407) 351-3549
Lake Apopka Natural Gas District	(352) 394-3480
Teco Peoples Gas	(407) 425-4662

**NO LANE CLOSURES**

**ANY DEVEATIONS FROM THE PERMIT TRAFFIC CONTROL PLAN MUST BE APPROVED PRIOR TO CLOSING ANY LANES. TRAFFIC CONTROL SETUPS MUST BE SUPERVISED BY CERTIFIED PERSONNEL.**

The Permittee is responsible for insuring that each person supervising the selection, placement and maintenance of Traffic Control Devices within work zones shall be certified by attending a FDOT approved MOT Training Course. A copy of this certification shall be submitted to FDOT upon request.

Upon notification by the FDOT of deficiencies in the Traffic Control Plan or other matters involving traffic safety, the Permittee shall immediately make improvements as directed by FDOT. Should FDOT deem conditions to be such that imminent danger is present, all work shall cease immediately until conditions are corrected.

Florida Statute 335.15 requires Permittee to notify local law enforcement agencies when one or more traveling lanes will be closed for more than two (2) hours.

Notify Metro Orlando North Maintenance, (407) 977-6530, at least 48 hours prior to starting construction or lane closures within FDOT Right-of-Way.

All disturbed areas shall be sodded in accordance with Section 575 of the FDOT Standard Specification for Road and Bridge Construction and FDOT Index 105 of the Roadway and Traffic Design Standards ( latest editions).

Permittee shall furnish compaction and density test reports by a certified laboratory in accordance with FDOT requirements.

Any applicable erosion control shall be in accordance with Section 104 of the FDOT Standard Specifications for Road and Bridge Construction (latest edition) and FDOT Index 102 of the FDOT Roadway and Traffic Design Standards.

Materials Certification will be required for all paint and thermoplastic

All construction and/or maintenance on FDOT Right-of-Way shall conform to the Federal Manual on Uniform Traffic Control Devices for Streets and Highways, the FDOT Roadway and Traffic Design Standards and the Standard Specifications for Road and Bridge Construction.

Any landscaping, irrigation, sidewalks, drainage connection and utility work must be on separate permits.

It is the Permittee's responsibility to meet all requirements of the Florida Department of Environmental Protection, St. John's River Water Management District and obtain any other required permits from other Governmental Agencies.

If traffic signals are in the area of construction, notify Orange County Traffic Engineering, (407) 836-7890 or Seminole County Traffic Engineering, (407) 665-5677.

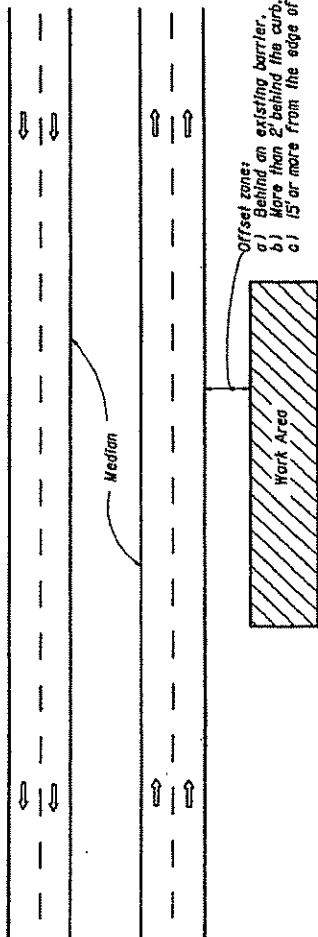
Certain driveway connection permits require submission of record drawings within thirty (30) days of construction completion. Refer to Rule 14-96, Section 14-96.008(6).

Other requirements: USE INDEX 611 AND 612 FOR TRAFFIC  
CONTROL. USE INDEX 660 FOR PEDESTRIAN TRAFFIC  
CONTROL.

COORDINATE THE WORK WITH SEM. CO. ENGINEERING  
AND WITH THE E.O.R. FOR THE RECONSTRUCTION  
PROJECT: JERRY WARREN P.E., HORIZON ENG. GROUP,  
407-644-7755.

PERMIT NUMBER 06H593-0324  
SECTION NUMBER 77010  
STATE ROAD NUMBER 15-600  
MILE POST NUMBER 0.738

FDOT CONSTRUCTION IS  
PROPOSED OR UNDERWAY ☒  
SECTION/JOB NUMBER 414779-1-52-01  
FM NUMBER \_\_\_\_\_



#### GENERAL NOTES

1. If the work operation (excluding establishing and terminating the work area) requires that two or more work vehicles cross the offset zone in any one hour, traffic control will be in accordance with Index No. 602.
2. No special signing is required.
3. This Index also applies when work is being performed on a multilane undivided highway.
4. This Index also applies to work performed in the median behind an existing barrier or more than 15' from the edge of travel way, both roadways. Work performed in the median behind curb and gutter shall be in accordance with Index No. 602.
5. When a side road intersects the highway within the work area, additional traffic control devices shall be placed in accordance with other applicable TCZ indexes.
6. When construction activities encroach on a sidewalk refer to Index No. 600.
7. For general TCZ requirements and additional information refer to Index No. 600.

#### SYMBOLS



Work Area



Lane Identification - Direction of Traffic

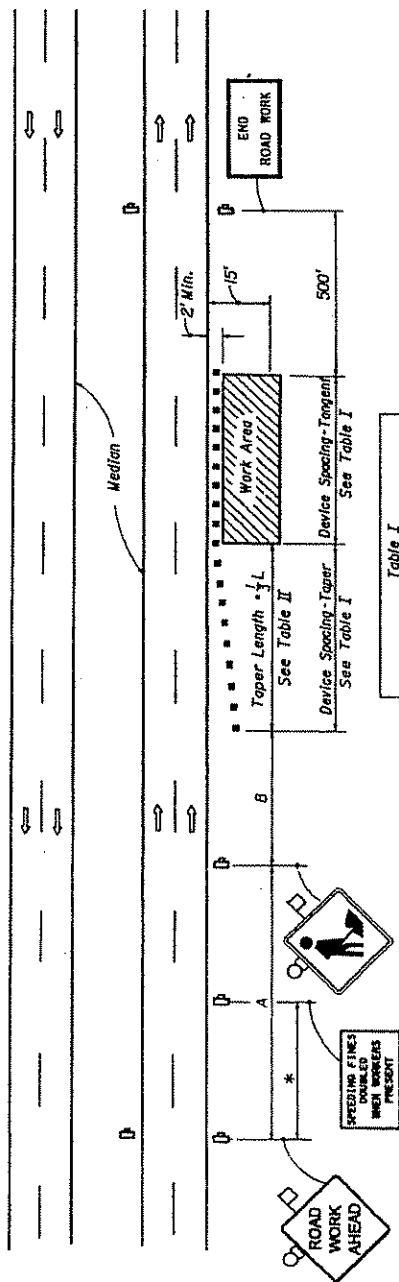
**CONDITIONS**  
WHERE ANY VEHICLE, EQUIPMENT,  
WORKERS AND THEIR ACTIVITIES  
ARE BEHIND AN EXISTING BARRIER,  
MORE THAN 2' BEHIND THE CURB,  
OR 15' OR MORE FROM THE EDGE  
OF TRAVEL WAY



2008 FDOT Design Standards

Sheet No.  
1 of 1  
Index No.  
611

**MULTILANE, WORK OUTSIDE SHOULDER**



**Table II - Shoulder**

Speed (mph)	$\frac{1}{2}L$ (ft)			Notes
	8'	10'	12'	
25	28	35	42	WS* L=60
30	40	50	60	
35	55	68	82	
40	72	90	107	L=WS
45	100	150	180	
50	133	187	200	
55	147	183	220	L=WS
60	160	200	240	
65	173	217	260	
70	187	233	280	

8' minimum shoulder width.  
 $\frac{1}{2}L$  = Length of shoulder taper in feet  
 W = Width of total shoulder in feet (combined paved and unpaved width)  
 S = Posted speed limit (mph)

**Table I - Device Spacing**

Speed (mph)	Max. Distance Between Devices (ft)		
	Channelizing Devices or Traffic Barriers	Channelizing Devices or Traffic Barriers	Taper
25	25	50	25
30 to 45	25	50	30
50 to 70	25	50	50
75 to 100	25	50	100

**DISTANCE BETWEEN SIGNS**

Speed	Spacing (ft)	
	A	B
40 mph or less	200	200
45 mph	350	350
50 mph or greater	500	500

\* 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

**GENERAL NOTES**

- All vehicles, equipment, workers, and their activities are restricted to one side of the roadway.
- If the work operation approaches on the through traffic lanes or when the work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area) a flagger shall be provided and a FLAGGER sign shall be substituted for the WORKERS sign. The flagger shall be positioned at the point of vehicle entry or departure from the work area.
- This TCZ plan also applies to work performed in the median more than 2' but less than 15' from the edge of travelway.
- When work is being performed on a multilane undivided roadway the signs normally mounted in the median (as shown) shall be omitted.
- WORKERS signs to be removed or fully covered when no work is being performed.
- SHOULDER WORK sign may be used as an alternate to the WORKER symbol sign.
- When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TTC indexes.
- For general TCZ requirements and additional information refer to Index No. 800.

**DURATION NOTES**

- Signs and channelizing devices may be omitted if all of the following conditions are met:
  - Work operations are 60 minutes or less.
  - Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCR OACH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.

**SYMBOLS**

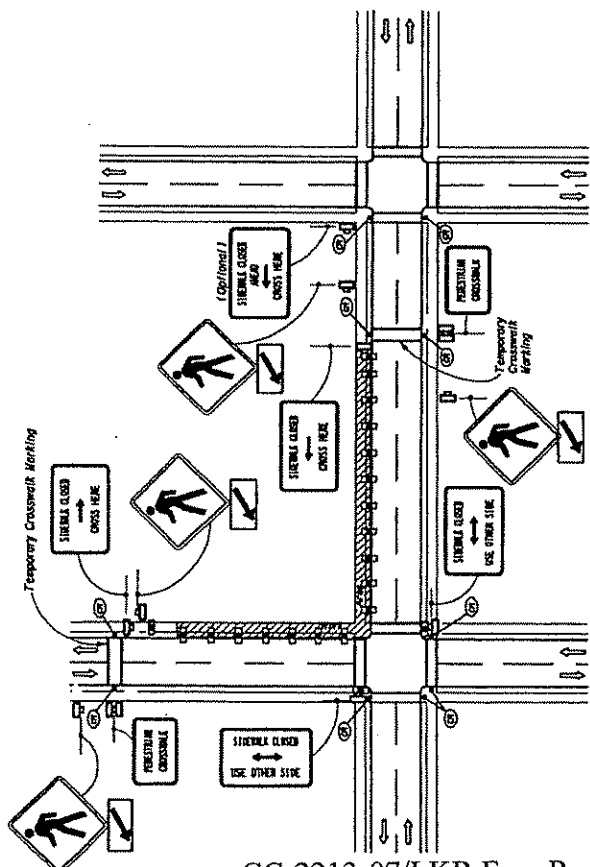
- Work Area
- Sign With 18" x 18" (Min.)
- Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Lane Identification + Direction of Traffic

2008 FDOT Design Standards

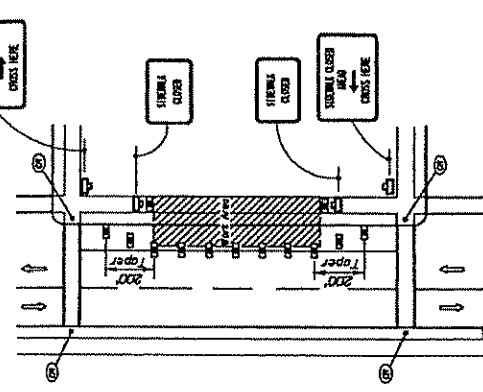
**MULTILANE, WORK ON SHOULDER**

Sheet No.  
070105

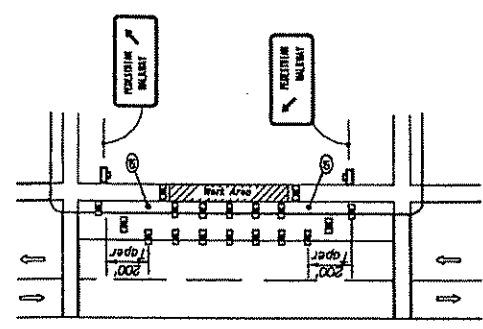
Index No.  
**612**



**CORNER SIDEWALK CLOSURE WITH TEMPORARY CROSSWALKS**



**MID-BLOCK SIDEWALK CLOSURE**



**MID-BLOCK SIDEWALK CLOSURE WITH TEMPORARY WALKWAY**

**SYMBOLS**

Work Area

Type I Or Type II Barricade Or Vertical Panel Or Drum (With Steady Burning Light At Night Only). (Thinner Markings May Be Used During Daylight Only. Cures May Be Used - See Index No. 600.)

Work Zone Sign

Required Locations For Either Temporary Or Permanent Curb Ramps.

Lane Identification - Direction of Traffic

**GENERAL NOTES**

1. Only the signs controlling pedestrian flows are shown. Other work zone signs will be needed to control traffic on the streets.
2. For spacing of traffic control devices and general TCZ requirements refer to Index No. 600. Maximum spacing between barricades, vertical panels, drums or tubular markers shall not be greater than 25'.
3. Street lighting should be considered.
4. For nighttime closures use Type A flashing warning lights on barricades supporting signs and lighting sidewalks. Use Type C signs and lighting devices separating the work area from vehicular traffic.
5. Pedestrian traffic signal display controlling closed crosswalks shall be covered or deactivated.
6. Post Mounted Signs located near or adjacent to a sidewalk shall have a 7' minimum clearance from the bottom of sign to the sidewalk.
7. When construction activities involve sidewalks on both sides of the street, efforts should be made to stage the construction so that both sidewalks are not out of service at the same time.
8. In the event that sidewalks on both sides of the street are closed, pedestrians shall be guided around the construction zone.
9. Temporary walkways shall be a minimum of 4'-wide with a maximum 0.02 cross slope and a maximum 0.05 running slope between ramps. Temporary walkways shall be constructed with 200" Temporary ramps shall meet the requirements for curb ramps specified in Index No. 304, General Notes 1 through 7. Temporary walkway surfaces and ramps shall be stable, firm, slip resistant, and kept free of any obstructions and hazards such as holes, debris, mud, construction equipment, stored materials, etc.
10. Temporary ramps and temporary crosswalk markings shall be removed with reopening of the sidewalk unless otherwise noted in the plan. All work materials and equipment shall be removed from the temporary crosswalk markings, removed and disposed of temporary curb ramps and temporary crosswalk markings, and restoration to original condition shall be paid for as Maintenance of Traffic, Lump Sum.

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT WORKERS OR THEIR ACTIVITIES ENCRUSCH ON THE SIDEWALK FOR A PERIOD OF MORE THAN 60 MINUTES.



2008 FDOT Design Standards

**PEDESTRIAN CONTROL FOR CLOSURE OF SIDEWALKS**

Sheet No. 0701005  
Index No. 1 of 1  
**660**

SEMINOLE COUNTY, ENGINEERING DIVISION  
CONSTRUCTION APPLICATION / PERMIT

**DIRECTIONS:** Legibly complete application as required. Submit this 4-page form with 2-sets of detailed construction plans. See conditions on reverse of this permit. For assistance, contact the Seminole County Engineer.

Section I APPLICANT INFORMATION

Applicant's Name: Seminole Co. Environmental Firm/Utility Name: CPH Engineers, Inc.  
Address: 500 West Lake Mary Blvd. Phone Number: 407-322-6841  
Sanford, FL 32773 24/7 Emergency No. \_\_\_\_\_

Section II PROJECT INFORMATION

RIGHT-OF-WAY CONSTRUCTION — ☒

EASEMENT CONSTRUCTION — ☐

(All construction activity within Seminole County Public Rights-of-Way/Easements that require an M.O.T., excavation, restoration or system upgrade/repair).

LOCATION OF PROPOSED CONSTRUCTION: South St. from Driftwood Dr. to Lauren Ct. /  
O'Brien R. From 17-92 to Jaffa Dr.  
Section 19 Township 21 Range 30

DESCRIPTION OF PROPOSED CONSTRUCTION:

Bore — County Paved / Stabilized Roadway

Bore & Jack \_\_\_\_\_ Total No. \_\_\_\_\_

Directional Bore 83 Total No. \_\_\_\_\_

Open Cut — County Paved / Stabilized Roadway

Paved 2 Total No. \_\_\_\_\_

Stabilized \_\_\_\_\_ Total No. \_\_\_\_\_

Pole Installations \_\_\_\_\_ Total No. \_\_\_\_\_ Poles Used/Upgrade \_\_\_\_\_ Total No. \_\_\_\_\_ Emergency Repairs — ☐

Trench \_\_\_\_\_ Lf. Width \_\_\_\_\_ Ft. Residential Driveway — ☐ Landscaping / Irrigation — ☐

Block/Impede Pedestrian Or Vehicle Traffic (Note: If pedestrian traffic is affected within a 2 mile radius of a school, applicant agrees to coordinate with school officials) — ☐

DESCRIBE OTHER CONSTRUCTION: Installation of 1110 LF of 8" WM along South St.,  
210 LF of 8" WM along Highland Dr., and 236 LF of 8" WM along  
O'Brien Rd.

Section III LOCATION OF EXISTING UTILITIES

Applicant agrees all existing utilities/facilities shall be located, exposed and verified prior to construction — ☐

WATER Seminole Co. Environmental ELECTRIC Progress Energy  
SEWER Seminole Co. Environmental CATV Bright House Networks  
TELEPHONE Bellsouth, AT&T, Sprint OTHER \_\_\_\_\_

GAS Teco People's Gas GAS Location Request ID No. 286504253 (Required Information for permit Processing)

THE SEMINOLE COUNTY ENGINEER MUST BE CONTACTED A MINIMUM OF 24 HOURS AND A MAXIMUM OF 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION.

Section IV ENGINEERING/CONTRACTOR AND/OR OWNER  
AUTHORIZED AGENT SIGNATURES

I/We Represent That The Above Statements And The Information, Statements And Presentations On Materials Submitted Herewith Is True.  
I/We Are Providing These Matters To Induce Seminole County To Issue A Construction Permit. I/We Agree With All Conditions Imposed  
By Seminole County.

TITLE Project Manager Date: 1 / 17 / 07

TITLE Utilities manager Date: 1 / 22 / 07

SIGNATURE \_\_\_\_\_ ENGINEER/CONTRACTOR  
SIGNATURE \_\_\_\_\_ OWNER/AUTHORIZED AGENT

Section V PERMIT ACTION

APPROVED — ☒

APPROVED WITH SPECIFIC CONDITIONS — ☐

DENIED — ☐

PERMIT NO. 92179 Attachments — Yes ☐ No ☐ FEE: \$ No fee

APPROVAL DATE 04 / 18 / 2007 EXPIRATION DATE 02 / 18 / 2008 County, Project

APPLICATION APPROVED BY: \_\_\_\_\_ (For the County Engineer)

Section VI INSPECTION RECORD

CONSTRUCTION START DATE: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ COMMENTS: \_\_\_\_\_

CONSTRUCTION COMPLETION DATE: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ INSPECTOR: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

## CONDITIONS

1. The issuance of this Permit is governed by and regulated by the following:
  - a. "The Communications Act of 1934, as Amended" and "Relevant Case Law of the United States Supreme Court."
  - b. The Florida State Statutes relating to the Use of County Right-of-Way and Property Interests.
  - c. The Florida Administrative Code.
  - d. Seminole County Codes, Ordinances and Policies.
  - e. Any fees established by Seminole County and any additional requirements and conditions of the Seminole County Board of County Commissioners or the County Engineer.
2. It is understood and agreed that the Licenses and Privileges herein set out are granted to the extent of the County's right, title and interest, if any, in the land to be entered upon and used by the Permittee, and Permittee will at all times, assume any and all risk of and indemnify, defend, and save harmless the County from and against any and all losses, damages, costs and expenses arising in any manner whatsoever on account of or in any way resulting from the exercise or attempted exercise by said Permittee of the aforesaid Licenses and Privileges or otherwise resulting from the acts or omissions of the Permittee or its officers, employees or agents. The Permittee agrees that its assumption of risks and obligations to indemnify the County related to Permittee's work or placement of any improvements shall survive the expiration date of this Permit. The Permittee agrees to pay any and all costs, fees and expenses that the County in any way incurs relative to enforcing the terms and conditions of this Permit, including, but not limited to, Attorney's Fees and Legal Costs at trial, on appeal or at any administrative proceeding. The Permittee understands and acknowledges that any and all payments to obtain this permit only cover direct and indirect costs which the Permittee's use of public rights-of-way have or will generate, and further that such payments do not encompass the fair value of Permittee's use or occupation of public rights-of-way.
3. It is expressly agreed by the Permittee that this Permit is a License for Permissive Use only and that the placing of improvements, such as, but not limited to, utilities, facilities, roadways, structures or landscaping upon public property pursuant to this Permit shall not operate to create or vest any property right whatsoever in said Permittee, current owner/operator or adjacent property owner. The scope of this license shall not be expanded physically, functionally or as to the breadth of services permitted through it without the prior consent of the County.
4. The Permittee agrees that the construction and/or maintenance of improvements shall not interfere with the property and rights of a prior occupant including, but not limited to, the County. The Permittee shall pay any and all costs and expenses in any way relating to activities of the Permittee interfering with said property and/or rights.
5. In the event of rerouting, widening, repair, construction or reconstruction of public roadways, utilities, facilities or structures, the Permittee shall, within ninety (90) days of receiving written notice from the County Engineer, remove or relocate its facilities within the public rights-of-way, at no cost to County, to clear the area for the County's work.
6. The Permittee and the holder of this Permit shall take all safety measures, including, but not limited to, the placing and displaying of warning/channelizing/regulatory signs, signals, lights, barricades, cones, drums, beacons, devices, pavement markings and flaggers as required by the most recent FDOT Roadway and Traffic Design Standards and shall also prevent any obstructions or conditions which are or may become dangerous to the traveling public as conclusively determined by the County Engineer or his Designee. The Permittee shall be responsible for any and all costs related to loss of life, personal injury and/or property damage relating to the impedance or obstruction of either pedestrian or vehicular traffic.
7. If an emergency or any other situation arises which a reasonably prudent person would believe to be an emergency situation, the Permittee and the holder of this permit shall immediately take all actions necessary to ensure the safety of the traveling public and construction persons including contacting emergency services such as police, medical or fire. Permittee will contact and advise the County Engineer of the situation and take any and all remedial actions in addition to those required by the County Engineer.
8. Prior to any construction, Permittee agrees to obtain all required approvals, agreements and/or permits relative to the type and location of the proposed work from all Federal, State, County, City, real property owner and any other Regulatory Agency or Department. The Permittee, Owner, Agent or Contractor must obtain a Federal NPDES Permit if the proposed construction disturbs (five) 5 acres or more total land area.
9. Any work that commences without all required State, Regional or Local Permits available on the job site or without establishing:
  - 1) the actual location of existing utilities;
  - 2) safety measures;
  - 3) without coordination by the Permittee relative to emergency situations;shall be immediately suspended until all requirements have been met and penalty fees, if any, paid. The penalty fee for work that commences without a Permit shall be no less than the Permit fee for each occurrence. Additionally, failure to obtain a Permit may result in a case being filed with the Code Enforcement Board of Seminole County or other appropriate actions in accordance with State Law and County Ordinances. In the event this Permit is subject to or issued in conjunction with any other Permit, whether Federal, State, Regional or Local, this Permit shall automatically be suspended indefinitely if such other Permit is terminated or suspended.
10. Permittee declares that prior to any construction or excavation, notice as required and as necessary in accordance with sound operating and engineering practices, will be issued to the owners of real property, owners/operators of all existing utilities, facilities or improvements, both underground and aerial. Permittee shall include as information on this Permit the required gas pipeline/facilities location request identification ticket/reference number.
11. At the request of the County Engineer, Permittee agrees to submit As-built Engineering Plans within thirty (30) days detailing the location of all construction improvements.

## SECTION 01070 - ABBREVIATIONS

### PART 1 - GENERAL

#### 1.01 ABBREVIATIONS

- A. References to technical societies, institutions, associations, or governmental authorities are made in accordance with the following abbreviations:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APA	American Plywood Association
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWS	American Welding Society
AWWA	American Water Works Association
F.A.C.	Florida Administrative Code
FDOT	Florida Department of Transportation
FDEP, DEP	Florida Department of Environmental Protection
FM	Factory Mutual System
Fed. Spec. or FS	Federal Specifications; Florida Statutes
IRI	Industrial Risk Insurers
NAAMM	National Association of Architectural Metal Manufacturers
NBS	National Bureau of Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
SDI	Steel Deck Institute or Steel Door Institute
SJI	Steel Joist Institute
SJRWMD	St. Johns' River Water Management District
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
UL	Underwriters' Laboratories, Inc.

END OF SECTION



## SECTION 01150 - MEASUREMENT AND PAYMENT

### PART 1 - GENERAL

#### 1.01 GENERAL

- A. Measurement and payment will be based upon Work completed and accepted in accordance with the Contract Documents. All materials, equipment, skills, tools, and labor which is reasonably and properly inferable and necessary for the proper completion of the Work in a substantial manner and in compliance with the requirements stated or implied by the Drawings and Specifications shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not. These items are considered incidental to the various bid items shown in the Bid Form. The described items apply for all applicable parts in the Bid Form.
- B. The bid items shown on the Bid Schedule have been created as a convenience solely for the purpose of comparison of bids and for use in the preparation of monthly construction estimates. Quantities shown thereon must be considered as approximate only, and the Contractor shall not plead misunderstanding or deception because of this estimate of quantities. The Contractor is responsible for making his own estimate of the size, kind, and quantity of materials and equipment included in the Work to be done under this Contract. All work shown on the Drawings, herein specified, or implied in any way in the Drawings or Specifications shall be done regardless of whether or not the work is specifically defined in any bid item.
- C. During preparation of the Contractor's bid, and at least seven (7) days before bid submittal, the Contractor is required to bring to the attention of the County's Purchasing Division, in writing, any discovered discrepancy, omission, or deficiency in the Drawings or Specifications that impacts the Contractor's ability to accurately prepare his bid.
- D. All measurement for payment will be based on the actual quantities of completed and accepted work performed in strict accordance with the Drawings and Specifications. All work completed under this contract shall be measured by the Contractor in the presence of the Owner or his representative according to the methods outlined below.
- E. The County reserves the right to alter the Drawings, modify incidental work as may be necessary, and increase or decrease quantities of work to be performed to accord with such changes, including deduction or cancellation of any one or more of the Pay Items. Changes in the work shall not be

considered as a waiver of any conditions of the Contract nor invalidate any provisions thereof. When changes result in changes in quantities of Work to be performed, the Contractor will accept payment according to Contract Unit Prices that appear in the original Contract. A supplemental agreement between the Contractor and the County will be required when such changes involve a net increase or decrease of more than 25 percent of the estimated quantity of a payment item where the item amounts to 10% or more of the Contract Price.

## 1.02 EQUIPMENT AND MATERIAL IN STORAGE

- A. Payment for materials and equipment in proper storage at the site of the Work or other approved storage site will be made for those items for which the Contractor has submitted paid invoices less ten percent to the Engineer.
- B. Proper storage requires that the materials are stored in a bonded warehouse and proof of the bonding insurance must be provided to the County. The Contractor shall be wholly responsible to replace any and all items that are lost or stolen whether stored on site or in a bonded warehouse. This replacement shall be done by the Contractor at no additional cost to the County. The County shall not be responsible for materials and equipment that become damaged or stolen if the Contractor chooses to store said materials and equipment on-site.

## 1.03 EQUIPMENT AND MATERIAL PURCHASED BY SEMINOLE COUNTY ENVIRONMENTAL SERVICES DEPARTMENT:

See Section 01010, Part 1.03 for a complete list of equipment and material to be supplied by Seminole County and installed by the Contractor.

## PART 2 - MEASUREMENT AND PAYMENT

### 2.01 MOBILIZATION

- A. Work Includes  
Preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, plus permits, bonds, insurance.
- B. Unit of measurement is lump sum.
- C. Payment of this item shall be distributed equally over the first two payment applications.

5/3/07

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## 2.02 PRECONSTRUCTION VIDEO

### A. Work Includes

Preconstruction documentation via videotaping plus all 35 mm color photographs necessary to pick up detail not easily visible or apparent on the videotape.

### B. Unit of measurement is lump sum.

## 2.03 MAINTENANCE OF TRAFFIC

### A. Work Includes

The construction and maintenance of any necessary detour facilities; the providing of necessary facilities for access to residences and businesses along the project; the furnishing, installation and maintenance of traffic control and safety devices during construction; daily inspections of the traffic control devices (including nighttime inspections); replacement of all equipment and devices found not to be conforming with approved standards during the inspection; the control of dust, and any other special requirements for safe and expeditious movement of traffic as may be called for on the plans. The term "Maintenance of Traffic" shall include all such facilities, devices, and operation as are required for the safety and convenience of the public as well as for minimizing public nuisance; all as required by the FDOT, the Engineer and the Owner. This work shall also consist of the removal of existing pavement markings necessary in order to implement traffic control, temporary signs, and the removal or relocation of existing signs in order to implement traffic control. This item also includes any adjustments necessary to the traffic control devices under emergency conditions.

### B. Unit of measurement is lump sum

### C. Payment of this item shall be made under the following schedule:

Percent of Original Contract Amount Earned	Allowable Percent of the lump sum Price to be Paid
5	25
10	50
25	75
50	100

## 2.04 EROSION AND SEDIMENT CONTROL

### A. Work Includes

Providing, inspecting and maintaining erosion and sediment control measures, as needed throughout construction.

### B. Unit of measurement is lump sum.

## 2.05 CLEARING AND GRUBBING

### A. Work Includes

Clearing, grubbing, disposal of debris.

### B. Unit of measurement is lump sum.

## 2.06 DEMOLITION (WTP SITE)

### A. Work Includes

Coordination with adjacent property owners, Deactivating all onsite utilities, cutting, capping, existing lines, existing well, removal of entire building and appurtenances, removal of onsite materials including piping, valves, slabs.

### B. Unit of measurement is lump sum.

## 2.07 RESTORATION (WTP SITE)

### A. Work Includes

Backfilling, compacting, and grading the site plus all areas affected by demolition activities after demolition operations are complete.

### B. Unit of measurement is lump sum.

### C. This pay item does not include grassing of the site after restoration. Grassing will be paid for under the "sodding" pay item.

## 2.08 REMOVE AND REINSTALL MAILBOXES

### A. Work Includes

Removing and reinstalling existing mailboxes and appurtenances, including temporary reinstallation as needed to ensure delivery of mail is not disrupted during construction.

- B. Unit of measurement is lump sum.

## 2.09 REMOVE AND REPLACE EXISTING LANDSCAPING

- A. Work Includes

Removing and replacing existing landscaping as needed to accommodate construction. Replacement plantings are to be same type as removed material and are to be Florida Grade 1 new plantings, 3-gallon minimum size, 3-ft on center maximum spacing. Work also includes new ground cover between plantings and is to match existing, and the work is to include repairs and or adjustments to existing irrigation as needed.

- B. Unit of measurement is lump sum.

## 2.10 REMOVE AND REPLACE ASPHALT PAVEMENT

- A. Work Includes

Removal and disposal of existing pavement and base, placing, grading, mixing, and compacting stabilized subgrade material. The amount and nature of the stabilizing material to be added shall be determined by the Contractor. Includes placing, grading and compacting the pavement base course material, hauling, sanding, prime, tack and surface courses, compaction, leveling, finishing, testing.

- B. Unit of measurement is square yards. The quantity of removal and replacement shown on the Bid Form is based on the widths shown on the drawings. Should the Contractor disturb more areas for his convenience then the Contractor shall restore these areas at no additional cost to the Owner.

- C. Whenever coring or other data indicates that the sub-base, base, or asphalt thickness is less than called for on the Plans (thickness required by the plans shall be considered to be minimum thickness), or does not otherwise meet the Specifications, the Contractor will correct the deficiency by replacing the full thickness for a length extending 50' from each end of the deficient area. The Contractor will receive no compensation for any sub-base, base, or asphalt so removed, for work in removing such sub-base, base, or asphalt and will be paid only for accepted sub-base, base, or asphalt within the allowable limit. Sub-base,

5/3/07

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base, or asphalt in excess of the thickness called for on the Plans will be allowed to remain in place and no extra compensation paid to the Contractor, provided the excess thickness does not cause unsatisfactory conditions and is compatible with the adjacent work.

#### 2.11 MILLING AND RESURFACE EXISTING ASPHALT PAVEMENT, RE-STRIP

A. Work Includes

Removal of asphalt by milling, disposal of removed material, sweeping of milled surface prior to asphalt placement, placing, grading and compacting asphalt, re-striping to match existing pavement markings.

B. Unit of measurement is square yards.

#### 2.12 REMOVE AND REPLACE ASPHALT DRIVEWAYS

A. Work Includes

Removal and disposal of existing pavement and base, placing, grading, mixing, and compacting stabilized subgrade material. The amount and nature of the stabilizing material to be added shall be determined by the Contractor. Includes placing, grading and compacting the pavement base course material, hauling, sanding, prime, tack and surface courses, compaction, leveling, finishing, testing. Work also includes any temporary driveways as needed to ensure access to each residence during construction, and removal and restoration to existing condition or better of the temporary driveways.

B. Unit of measurement is square yards. The quantity of removal and replacement shown on the Bid Form at each driveway is generally based on the driveway removal limits as shown on the drawings. Should the Contractor disturb more areas for his convenience than the Contractor shall restore these areas at no additional cost to the Owner.

#### 2.13 REMOVE AND REPLACE CONCRETE CURB

A. Work Includes

Removing and disposing of existing curbing and gutters, forming, placing, finishing and curing new concrete curbing and gutters, sawcutting joints.

B. Unit of measurement is linear feet.

## 2.14 CONCRETE SIDEWALK (REMOVE AND REPLACE)

### A. Work Includes

Removing and disposing of existing sidewalk, forming, placing, finishing and curing new concrete sidewalk (including ramps and detectable warning surfaces at ramps), sawcutting joints.

### B. Unit of measurement is square yards.

## 2.15 SODDING

### A. Work Includes

Soil preparation, sod installation, sanding joints, fertilizing, watering, and mowing.

### B. Unit of measurement is square yards. The quantity of sodding shown on the Bid Form is generally based on grassing the areas of construction. Should the Contractor disturb more areas for his convenience (construction access and stockpiling), then the Contractor shall restore (including grassing) these areas at no additional cost to the Owner.

## 2.16 REMOVE EXISTING FENCE

### A. Work Includes

Removal and disposal of existing fence, posts, and gates, and appurtenances.

### B. Unit of Measurement is linear feet.

## 2.17 TYPE "B" FENCE

### A. Work Includes

Survey, layout, corner posts, end posts, pull posts, line posts, rails, chain link fabric, tension wire, tie wire, barb wire attachment, connection to existing fence, concrete bases for posts.

### B. Unit of Measurement is linear feet.

## 2.18 PEDESTRIAN GATE (TYPE 'B' FENCE - 4-FT OPENING)

### A. Work Includes

Posts, rails, chain link fence fabric, concrete bases for posts, latch, locking device.

### B. Unit of Measurement is each.

## 2.19 DUCTILE IRON FITTINGS (WATER MAIN)

### A. Work Includes

Installation, thrust restraint, identification and warning tape, concrete encasement, disinfection, bacteriological and leakage testing.

### B. Unit of measurement is tons. The weight shall be as indicated in the manufacturing standards and shall include the weight of accessories. Estimated weights for this Bid Item are based on D.I. compact fittings.

## 2.20 WATER MAIN (DIRECTIONAL DRILL)

### A. Work Includes

Survey, layout, dewatering, verifying location and depth of existing utilities, excavating, filling, and compacting drilling and receiving pits, polyethylene pipe, pipeline identification, locate wire, pipe joining, fittings, connection to adjoining pipe, mechanical joint adapters, flange adapters, couplings, installation of pipe by directional drilling methods, disposal of removed material and fluids, connecting to pipes at each end of the drilled pipe, testing, disinfection, and restoration of all disturbed areas including sodding and sidewalk replacement. Where sleeves or casings are required, work includes the sleeve, casing, and carrier pipe.

### B. Unit of measurement is linear feet, measured horizontally along the ground surface between the points of connection to adjoining pipe, as detailed on the drawings.

## 2.21 WATER MAIN (OPEN CUT)

### A. Work Includes

Survey, layout, dewatering, excavation, sheeting, shoring, bracing, pipeline installation, pipeline identification and warning tape, thrust restraint, disposal of unsuitable or excess material, suitable backfill,



replacement of existing structures such as signs or fences encountered, connections, disinfection, bacteriological and leakage testing.

- B. Unit of measurement is linear feet.
- C. The Bid Schedule shows the types of pipeline material to be installed. Where it states "PVC or DI" then either ductile iron or PVC is acceptable in accordance with the specifications. (However, once a pipeline material is chosen and work has started, there cannot be changes to the material type made during construction except for those specific material type changes indicated on the drawings.)

## 2.22 REMOVE EXISTING VALVES (2", 3")

- A. Work Includes  
  
Dewatering, excavation, removal and disposal of existing valves and appurtenances, backfilling, restoration.
- B. Unit of measurement is each.

## 2.23 GATE VALVES

- A. Work Includes  
  
Dewatering, excavation, installation of valve and valve box, accessories, thrust restraint, disinfection, bacteriological and leakage testing.
- B. Unit of measurement is each.

## 2.24 FIRE HYDRANT ASSEMBLY

- A. Work Includes  
  
Dewatering, excavation, connection to fitting at water main, installation of gate valve and box, installation of hydrant, concrete shear pad, and blue reflective pavement marker at hydrant, painting of hydrant, bedding rock, backfill, accessories, thrust restraint, disinfection, bacteriological and leakage testing.
- B. Unit of measurement is each.

## 2.25 WATER SERVICE LINES (OPEN CUT)

- A. Work Includes

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Service lines, restoration after completion of operations, service piping and fittings, backfilling, compacting, disinfection, and testing.

- B. Unit of measurement is linear feet.

#### 2.26 WATER SERVICE LINES (DIRECTIONAL DRILL)

- A. Work Includes

Service line installation by directional boring a sleeve, installation of service pipe through the sleeve, restoration after completion of operations, fittings, backfilling, compacting, disinfection, and testing.

- B. Unit of measurement is linear feet.

#### 2.27 SINGLE AND DOUBLE WATER SERVICES

- A. Work Includes

Service piping and fittings, saddles, corporation stops, curb stops, disconnecting from meter and capping existing water service, connecting new water service to existing meter, restoration after completion of operations.

- B. Unit of measurement is each.

#### 2.28 SERVICE SADDLE AND GATE VALVE

- A. Work Includes

Dewatering, excavation, tapping existing or new main, installing valve as required, valve box, backfilling, compacting, disinfection, and testing.

- B. Unit of measurement is each.

#### 2.29 TAPPING SLEEVE AND VALVE

- A. Work Includes

Dewatering, excavation, installation of valve and valve box, tapping of main line, thrust restraint, testing.

- B. Unit of measurement is each.

## 2.30 LINE STOP ASSEMBLY

### A. Work Includes

Pipe boring, temporary valves or plugs, recovery of the temporary valves and plugs, and sealing of the bore hole with a permanent plug.

### B. Unit of measurement is each.

## 2.31 CAP EXISTING MAIN WITH RESTRAINED CONCRETE THRUST COLLAR

### A. Work Includes

Isolate active main, cut pipe, dispose pipe contents, cap existing main. Work also includes dewatering, excavation, thrust restraint including concrete thrust collar and tie rods, backfilling, restoration, and disinfection.

### B. Unit of measurement is each.

## 2.32 CONNECTION TO EXISTING WATER MAIN

### A. Work Includes

Dewatering, excavation, backfill, pipeline, valves, couplings, thrust restraint, bacteriological and leakage testing, etc., as required to complete the connection to the existing utilities as needed to provide a complete and workable utility system.

### B. Unit of measurement is each.

## 2.33 PLUG EXISTING WATER MAIN

### A. Work Includes

Dewatering, excavation, backfill, abandon main, cut and remove pipe contents, plug main, backfilling, restoration.

### B. Unit of measurement is each.

## 2.34 REMOVE PLUG AND CONNECT TO EXISTING WATER MAIN

### A. Work Includes

Dewatering, excavation, backfill, remove fitting, connect to existing pipe, bacteriological and leakage testing, etc., as required to complete the

connection to the existing utilities as needed to provide a complete and workable utility system.

- B. Unit of measurement is each.

#### 2.35 TEMPORARY JUMPER CONNECTION

- A. Work Includes

Excavation, dewatering, backfill, fittings, pressure gauges, double check backflow preventer assembly, meter, corporation stops, service saddles, connection to existing water main, accessories, removal and restoration after construction.

- B. Unit of measurement is each.

#### 2.36 TEMPORARY BLOWOFF ASSEMBLY AND SAMPLING POINT

- A. Work Includes

Excavation, dewatering, fittings, blowoff valve, accessories, testing, removal of assembly, plugging end of main, backfilling, compaction, restoration.

- B. Unit of measurement is each.

END OF SECTION

## SECTION 01200 - SPECIAL CONDITIONS

The following special conditions apply strictly to those utilities belonging to the Seminole County Environmental Services Department. All references to the "Contract Documents" are intended to include the complete bid documents (which consist of the General Conditions, Special Procedures, Plans, Technical Specifications, and any Addenda), Change Orders, and Contractual Agreements between the COUNTY and the CONTRACTOR pertaining to the specific project. UNLESS OTHERWISE NOTED, no specific pay item is provided for the conditions itemized and described in this Section and the cost for the labor, equipment, and materials associated with these items, including the requirements of Federal, State, and local agencies with jurisdiction over the work detailed in the Contract Documents shall be considered incidental to the contract. Therefore, the CONTRACTOR shall bear any costs associated with these Special Conditions. Failure to comply with these provisions shall be adequate grounds for ENGINEER to withhold pay requests and issue a stop work order at no cost to the COUNTY.

- 1.01 The CONTRACTOR shall be responsible to install locator balls on all Seminole County Utilities lines installed and/or worked upon during the project. The locator balls shall be located on potable water mains, reclaimed water mains, and force mains at one hundred foot intervals, and at all bends, "T's", valves, and any changes in direction on fittings. The balls shall be located not less than 12 inches and not greater than 24 inches below the final finished grade. The balls shall be blue for potable water and green for sewer. The location of these balls shall be reflected on the as-built drawings with the abbreviations of (WLB) for "water locate balls" and (SLB) for "sewer locate balls".
- 1.02 The CONTRACTOR shall be responsible for the removal and proper disposal of all asbestos cement (AC) pipe. The removal and disposal shall be in compliance with all applicable Federal, State, and local regulations regarding asbestos cement pipe. The pay item provided in the bid form associated with abandonment of AC pipe is intended to be inclusive of all costs associated with this item description.
- 1.03 It shall be the responsibility of the CONTRACTOR to obtain the services of a licensed professional land surveyor to survey the as-built location of the relocated utilities, including the locator balls, and make this information available to the Engineer that will serve as the Engineer of Record or CEI for the Seminole County Environmental Services Department systems. It shall be the responsibility of the Engineer serving as the Engineer of Record or CEI for the Seminole County Environmental Services Department systems to prepare and submit as-built drawings to both Seminole County Utilities and the Florida Department of Environmental Protection based upon the information provided by the CONTRACTOR and his or her surveyor, and inspection performed by the

COUNTY and the ENGINEER. Partial system as-builts required for partial clearances from FDEP during the construction process shall be prepared by the CONTRACTOR at no additional cost to the County.

#### 1.04 UTILITIES INFRASTRUCTURE MAINTENANCE

- A. Throughout the entire duration of the construction process and within the construction project boundaries, it shall be the responsibility of the CONTRACTOR to maintain the quality of groundwater and the location of all active Seminole County Utilities service lines and all utility lines that are pressurized (whether presently owned or to be owned in the future by Seminole County Utilities) by identifying, by preserving, and by protecting all valves (with their associated boxes and lids) and manholes. These locations must remain visible and accessible to Seminole County Utilities personnel.
- B. Protection shall be provided in the form of a 4" PVC conduit with a minimum burial of four feet and a minimum above-ground exposure of four feet. The entire circumference of the top 4" of the pipe shall be color-coded using blue paint to indicate water, green paint to indicate sewer, and purple paint to indicate reclaimed water.
- C. Protection shall be installed by the CONTRACTOR after the Notice to Proceed but prior to any work (including preliminary clearing and grubbing) being performed within the construction project limits. Until the required protection is installed, the CONTRACTOR is strictly prohibited from performing any preliminary clearing or grubbing or excavating in areas that are adjacent to or include Seminole County Utilities.
- D. Protection of utility lines that are to be removed and/or taken out of service shall be removed only after the following conditions are met:
  - 1) The replacement line is in service and approved for operation by the Florida Department of Environmental Protection and the ENGINEER and accepted by Seminole County Environmental Services Department.
  - 2) All service connections have been relocated from the utility line to be taken out of service, to the utility line that has been placed in active service with approvals from the Florida Department of Environmental Protection, the ENGINEER, and the Seminole County Environmental Services Department.
  - 3) The utility line to be taken out of service has been depressurized.

- E. With respect to the utility lines that are to be the final utility lines in service at the completion of construction, the protection shall be removed by the CONTRACTOR only after the final site restoration (including final sodding of all disturbed areas) has been accepted by the ENGINEER.
- 1.05 The CONTRACTOR and subcontractor shall be responsible for maintaining the quality of groundwater near the construction site until completion of all work and acceptance by the Engineer. If work is performed within 150' of potable water wells or groundwater monitoring wells, then at all times during construction and testing, the CONTRACTOR and subcontractor shall take necessary precautions to prevent tampering of the well or the entrance of contaminants into the well. The CONTRACTOR and subcontractor shall be responsible for returning the water to its original quality in a timely manner should contamination occur, regardless of the presence of wells. Only dual contained, portable fuel tanks shall be utilized.
- 1.06 The CONTRACTOR shall be responsible for adjusting all manholes, valve boxes, lids, water meters, and similar structures to match the final project finished grade, regardless of whether other utility work is performed.
- 1.07 MAIN TESTING AND CLEARANCE
- A. It shall be the responsibility of the CONTRACTOR to perform all water main pressure tests, and water main disinfection in preparation for subsequent bacteriological testing by the COUNTY'S designated laboratory. The CONTRACTOR shall be responsible for force main pressure tests. These tests (including disinfection) are considered incidental to the utility work.
- B. It shall be the responsibility of the CONTRACTOR to provide a "flushing plan" to Seminole County Environmental Services Department at the Utilities preconstruction conference. This plan shall clearly indicate the volumes to be flushed and the disposal methodology for the flush water as well as the launching points and retrieval locations required for the pigs and swabs which shall be considered part of the "flushing plan." Further, it shall be the responsibility of the CONTRACTOR to obtain any permits associated with the flushing activity including but not limited to National Pollutant Discharge Elimination Systems (NPDES) permits. Flushing of lines shall be considered incidental to the utility work.
- C. The CONTRACTOR shall be entirely responsible to coordinate and schedule the full diameter flushing activity and shall provide written notification to the COUNTY through the ENGINEER a minimum of 48 hours prior to commencing the flushing activity. The ENGINEER shall be responsible to notify Seminole County Environmental Services Department. All temporary

piping associated with the flushing shall be provided and installed by the CONTRACTOR and is considered incidental to the utility work.

- D. Neither the COUNTY nor the ENGINEER shall be held responsible for delays to the CONTRACTOR awaiting a "Letter of Clearance" or "Release for Use" from the Florida Department of Environmental Protection (FDEP) to operate either the collection or distribution systems. It shall be the responsibility of the CONTRACTOR to make provisions for the time to obtain these releases from FDEP when planning his "Schedule of Construction."

#### 1.08 SALVAGE OF EXISTING UTILITIES

- A. For projects including the salvage of existing Seminole County Utilities, CONTRACTOR shall exercise the appropriate care necessary to remove and stockpile all existing Seminole County Utilities (including, but not limited to, all piping, bends, valves, tees, fittings, hydrants, and appurtenances) in such a manner as to preserve the materials for future use. Salvaged materials shall be removed and stock piled, hauled, unloaded and stored in an orderly manner at the direction of Seminole County Environmental Services Department in an orderly manner by the CONTRACTOR at the Consumers Water Treatment Plant located at 3300 Dike Road, Winter Park, Florida. The pay item provided in the Bid Form referencing pipe removal is intended to be inclusive of all costs associated with the item description provided above.
- B. The CONTRACTOR shall contact the Seminole County Environmental Services Department's Maintenance Supervisor at (407) 665-2739 to arrange for the delivery of any salvaged materials to the location designated by Seminole County Environmental Services Department. The condition of the materials cannot be guaranteed, as they shall be subject to the normal excavation and handling procedures used on the project.
- C. The CONTRACTOR shall be responsible for the removal and disposal of all utility lines taken out of service. The CONTRACTOR shall be responsible for Seminole County utilities that are damaged and/or deemed unsalvageable by Seminole County Utilities.
- D. The COUNTY will identify which materials will be salvaged and delivered to the COUNTY. All other materials are to be disposed of by the CONTRACTOR at the CONTRACTOR'S expense. Proper disposal of these materials is considered incidental to the removal Pay Item.



## 1.09 CONTRACTOR SCHEDULING IN ORDER TO MAINTAIN SERVICE

- A. It shall be the responsibility of the CONTRACTOR through scheduling, to maintain service to Seminole County customers and to minimize conflicts with existing Seminole County service lines.
- B. For construction projects that are primarily roadway projects that include the relocation of Seminole County utilities within the project boundary, then if an existing Seminole County water or sewer main is located within 100 feet of any (1) proposed stormwater structures or conveyance piping; or (2) any proposed traffic signalization control devices; or (3) proposed roadway work including the base, sub-base, or final pavement; or (4) any related roadway infrastructure; AND in all instances where the plans clearly indicate that the existing utilities in this vicinity are to be relocated; then the CONTRACTOR shall be required to relocate the existing utility and place it in service prior to commencement of any subsurface excavation for installation of the aforementioned items listed in (1) through (4).
- C. If the CONTRACTOR is installing the roadway infrastructure listed in Item B (above) and encounters a conflict with an existing utility line, the County shall not consider any additional compensation due the CONTRACTOR unless the CONTRACTOR has abided by the requirements of Item B. This condition applies regardless of whether the conflicting line was previously undetected or is clearly depicted on the plans.
- D. The CONTRACTOR assumes the cost of providing any temporary utilities conflict provisions. This provision shall require the CONTRACTOR to bear all costs associated with the installation of various bends, piping and fittings that are installed on existing water and sewer mains that will ultimately be taken out of service when such installations are installed to benefit the CONTRACTOR and allow him to continue to install the roadway and utility infrastructure as detailed by the Contract Documents.
- E. For construction projects that are primarily roadway projects that include the relocation of Seminole County utilities within the project boundary, then it shall be the responsibility of the CONTRACTOR to relocate or adjust all Seminole County Utilities in accordance with the Contract Documents. Should a conflict arise between the relocated or existing utilities and the subsequent construction of the roadway and its associated infrastructure, it shall be the responsibility of the CONTRACTOR to relocate or adjust the utilities, providing the necessary piping, bends, tees, and fittings to resolve the conflict. Relocations of this nature shall be approved in advance of said work by both the ENGINEER and Seminole County Environmental Services Department. Such relocations shall be reflected on the as-built drawings

upon completion of the actual installation and such relocations shall be constructed at no additional cost to the COUNTY.

- F. The CONTRACTOR shall be responsible for coordinating the installation of new COUNTY utilities, or removal of existing COUNTY utilities with other utilities, including but not limited to telephone, fiber optic, gas and power. All costs associated with such coordination, or with any construction activities required for coordination, shall be the responsibility of the CONTRACTOR at no additional cost to the COUNTY.

- 1.10 For construction projects that are either: (1) primarily roadway projects that include Seminole County utilities within the project boundary or (2) primarily utility projects requiring installation of water and sewer mains on behalf of Seminole County Environmental Services Department; then it shall be the responsibility of the CONTRACTOR to provide all sheeting, bracing, shoring, and other forms of support for Seminole County Utilities when working adjacent to or directly upon existing and proposed Seminole County Utilities. The CONTRACTOR shall comply with this requirement throughout the duration of the project, whether the CONTRACTOR is installing or removing roadway infrastructure (including but not limited to (1) stormwater piping and structures; or (2) any proposed traffic signalization devices; or (3) roadwork including the base, sub-base, or final pavement) or installing or removing utilities that are owned by either Seminole County or another utility service company.

#### 1.11 SCHEDULED INTERRUPTIONS OF SERVICE

- A. For projects involving installation of new water mains to replace existing water mains; and when subdivisions, businesses, residences, and similar entities are served from the existing water main that is being replaced; then the CONTRACTOR shall assume that the water main being replaced is the only means of servicing said subdivisions, businesses, and residences and that no alternative water source or backfeed is available to these said entities.
- B. It is the responsibility of the CONTRACTOR to schedule all Seminole County Utilities shut-downs in advance with Seminole County Environmental Services Department. Should the CONTRACTOR create an unscheduled interruption of utility service, then the CONTRACTOR shall be directly responsible for performing the necessary repairs in order to restore service. In addition, the CONTRACTOR shall be billed for subsequent repair work performed by Seminole County Utilities, and shall be held liable for any claims, penalties, or enforcement actions related to the service interruption.
- C. All scheduling of Seminole County Environmental Services Department's field personnel and scheduled temporary interruption of Seminole County

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Utilities service shall be made at least 72 hours in advance. CONTRACTOR shall schedule shut downs in advance by submittal of "Seminole County Construction Projects 72-Hour Request for System Shut Down" to the ENGINEER who will then notify the COUNTY and its associated Utilities personnel. The COUNTY reserves the right to approve or disapprove the said request.

- D. If the requested "System Shut Down" is approved by the COUNTY, then it shall be the responsibility of the CONTRACTOR to notify all affected customers that will experience a disruption in service. Notification shall indicate the date and time limits of the interruption and must be provided to affected customers in writing a minimum of 48 hours in advance while simultaneously providing two (2) duplicate copies of all said notifications to ENGINEER. In lieu of written notification and if approved by the COUNTY, CONTRACTOR may opt to install signage in the affected area indicating the same information stated above with the same time constraints applied.
- E. The COUNTY reserves the right to require the CONTRACTOR to perform utility "tie-ins" and "main flushing" during periods of low flow conditions in order to minimize service disruptions. "Tie-ins" and "main flushing" of this nature are typically required to begin no sooner than midnight and be completed no later than 5:30 a.m. "Tie-ins" of this nature that are required by the COUNTY shall be performed by the CONTRACTOR at no additional cost to the COUNTY.

- 1.12 The requirements of the Utility Design ENGINEER OF RECORD may exceed the minimum technical requirements of Seminole County Environmental Services Department as depicted in the *Seminole County Land Development Code* including the "Water and Sewer Standards." In such instances, the more stringent requirement shall be observed. With respect to utilities, should a conflict exist within the Contract Documents, the more stringent requirements, as determined by the COUNTY through addendum, shall be observed during the preparation of bids. Subsequently, there shall be no increase in the cost for the labor, equipment, and materials associated with this item. Failure of the CONTRACTOR to request a determination of which requirements apply during bid preparation shall not be grounds for claims or additional compensation during construction if the COUNTY adopts the more stringent requirements.
- 1.13 For utility items not specifically covered by these Contract Documents, all construction shall be in accordance with the minimum technical standards as depicted in the latest copy of the *Seminole County Land Development Code* which includes the "Water and Sewer Standards." In the absence of a Technical Specification, use the applicable requirements of FDEP and the AWWA, both latest editions.

#### 1.14 PROGRESS MEETINGS

The Engineer administering the contract or CEI shall schedule and hold regular monthly progress meetings. CONTRACTOR, Engineer, and all Subcontractors active on the site and any other interested parties at the direction of the Engineer administering the Contract shall be represented at each meeting. In addition, weekly on-site review meetings shall be held during construction at the discretion of the Engineer administering the Contract or CEI. CONTRACTOR, Engineer, and all Subcontractors active on the site shall be represented at each meeting. These weekly meetings will be used as a tool for pre-planning of work and enforcing schedules and for establishing procedures, responsibilities, identify party or parties responsible for follow-up on items. Revisit each pending item at each subsequent meeting until resolution is achieved. Such meetings are considered to be incidental to the work and no additional compensation is allowed.

#### 1.15 REMOVAL OF EXISTING PAVEMENT, CURB, SIDEWALK

The CONTRACTOR shall not be allowed additional time, compensation, or claims for the cutting and removal of existing pavement, base, sub-base, or subgrade material, or concrete curbing or concrete sidewalk/driveways either for the purpose of installing the utilities as shown on the Drawings, or for the purpose of furnishing and installing any temporary pavement or sidewalks during construction to maintain the flow of vehicular and pedestrian traffic during the installation of the utilities as shown on the Drawings. This type of work is considered to be incidental to the installation of the new utilities and the cost of any such work is to be included in the base unit price(s) for the utility to be installed. Similarly, any pavement, base, sub-base, subgrade material, concrete curbing, concrete sidewalk, or concrete driveway which is impacted during construction is to be restored to existing or better condition prior to final acceptance of the work. This work is also considered to be incidental to the installation of the utility and shall be included in the base unit price for the several items of work.

#### 1.16 COORDINATION OF MAINTENANCE OF TRAFFIC

The CONTRACTOR is responsible for coordinating the construction of the utilities with the Maintenance of Traffic (MOT) plan for construction of the roadway and installation of the proposed storm sewer system. No additional compensation or time shall be allowed for this coordination or for any temporary utility construction or bypass systems necessary or required to complete the utility work as shown on the Drawings or as identified in the Specifications. The cost of this coordination, and for any temporary bypasses, shall be considered incidental to the cost of installation of the utility in question and shall be included in the base unit price for the several items of work.

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#### 1.17 DISCREPANCIES IN THE BID DOCUMENTS

- A. Whether a project is being administered primarily by Seminole County Environmental Services Department or another division within the COUNTY, it shall be the responsibility of the CONTRACTOR to alert the COUNTY in writing within 48 hours of discovery of any apparent discrepancies in the bid documents prior to submission of bids so that any required addendums can be issued to address these concerns. Given circumstances where it can be shown that a CONTRACTOR is aware of discrepancies in the bid documents and fails to formally alert the COUNTY in writing prior to the bid opening, CONTRACTOR shall not be permitted additional compensation to comply with the COUNTY and Utility Design ENGINEER OF RECORD'S intended requirements of the bid documents.
- B. Should a discrepancy in the bid documents be discovered by the CONTRACTOR after the bid opening, it shall be the responsibility of the CONTRACTOR to alert the ENGINEER in writing within 48 hours of the discovery of the discrepancy so that it can be addressed promptly to minimize impact on the project schedule. Failure of the CONTRACTOR to follow procedure shall forfeit any and all possibility for the CONTRACTOR to request additional compensation and time for the completion of construction. Further, failure of the CONTRACTOR to provide written notification of the discrepancy to the ENGINEER shall be regarded as an attempt by the CONTRACTOR to create an intentional delay in the construction and no additional compensation shall be allowed.

#### 1.18 SEQUENCING OF WORK

The Contractor is to first construct the work along U.S. 17-92 and O'Brien Ave. since this area will also be a part of FDOT's (Hubbard's) roadway construction. All other work sequencing may be of the Contractor's choosing.

END OF SECTION

## SECTION 01300 - SUBMITTALS

### PART 1 - GENERAL

#### 1.01 TYPES OF SUBMITTALS

- A. Construction Schedules: The Contractor shall prepare and submit to the Owner and Engineer, prior to the Preconstruction Meeting, a construction schedule showing the proposed dates for starting and completing each of the various branches of work. The schedule shall be in the form of a bar graph with a representation of the schedule of costs by months.
- B. Manufacturer's data shall include all standard published information describing products, systems, methods and performance. Include manufacturer's name and address, and associations with which manufacturer of his products comply.
- C. Shop drawings and schedules shall include items, products, materials, methods, anchorages, details, or any other information required to fabricate items of the Work and complete the installation which is not specifically stated or described on manufacturer's data. Shop drawings shall specifically address the Work of this project.
- D. Installation instructions shall include all information required from a manufacturer or fabricator to have his product installed. This may be included as a shop drawing if such are required.
- E. Warranties and Guarantees required by the Contract Documents shall begin on the official date of acceptance of the project or any portion thereof, into which the warranted or guaranteed item was installed, constructed, or otherwise made operational. All warranties and guarantees shall be in effect for a minimum of two years unless specified for a longer period. Include all specific items covered, company names and addresses, and names of persons authorized to warrant or guarantee item(s) if not a blanket coverage.
- F. Certifications and test reports of products, materials, and performance for compliance with specified requirements shall specifically address the Work and shall contain the name or signature and address of persons authorized to make such certifications.
- G. Evidence of compliance to instructions shall be copies of transmittal letters or letter of verification duly signed by authorized persons.

- H. Operation and Maintenance Manuals shall include all literature required to properly operate and maintain any equipment installed in the Work and shall include names and addresses of manufacturers and authorized service and/or parts representatives, and dealers and shall be delivered on or before date of beneficial occupancy. Complete requirements of Operation and Maintenance Manuals are specified in Section 01700.
- I. Samples required shall be as specified and shall include identifications of the specific item and specification section to which the sample applies.

#### 1.02 COPIES OF SUBMITTALS

- A. The minimum number of copies of submittals shall be submitted as follows and does not include numbers of copies required by the Contractor for his distribution or purposes.
  - 1. Manufacturer's data: 5
  - 2. Shop drawings and schedules: 5
  - 3. Installation instructions: 5
  - 4. Warranties and Guarantees: 4
  - 5. Certifications and test reports: 5
  - 6. Evidences: 5
  - 7. Operation and Maintenance Manuals: 4
  - 8. Samples: 3
  - 9. Progress Schedule: 5 (initially)
- B. Any copies submitted in addition to those required will be processed and returned to the Contractor. Additional copies may be in the form of a reproducible copy.
- C. Submittals received by the Engineer with less than the specified number of copies included will be immediately returned to the Contractor not reviewed and without action.
- D. As soon as practicable after the date of execution of the Owner/Contractor Agreement and within 60 days, the Contractor will make all required submittals.

#### 1.03 REVIEW OF SUBMITTALS

- A. All submittals required by the Contract Documents shall be sent to the Engineer or CEI administering the contract.

- B. Copies of submittals to be returned for the Contractor's use will be processed and mailed to the Contractor within 14 days of receipt of each submittal by the Engineer.
- C. Review of submittals is only for conformance with the design concept of the project or Work and does not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents nor from responsibility for errors and omissions in the submittals.
- D. Submittals received without the Contractor's signed "Checked and Approved" stamp on each copy will be Returned Without Action (RWA) and noted as such.
- E. Any submittals or portions thereof not properly identified as to functions or specific items on the drawings and applicable specification section number will be returned without action (RWA) and noted as such.
- F. Any submittals or portions thereof which are processed and returned to the Contractor will be marked "No Exception Taken", "Revise and Resubmit", or "Rejected". A finding of "No Exceptions Taken" does not relieve the CONTRACTOR of the responsibility to ensure that the products submitted will meet the intent of the design.
- G. Submittals which refer to information or data not included in the submittal (excluding the Contract Documents) will not be checked.

#### 1.04 WRITTEN DOCUMENTS

- A. All written documents including letters, letters of transmittal and request, generated by the Contractor shall be on standard letter or legal size paper and include Contractor name, the County's project name and number, Engineer's project number, date and must be signed by authorized personnel.
- B. Letters of transmittal whether written or of standard form, shall also clearly identify each part of the submittal with specification section number and drawing number and indicate the number of copies of each part. Letter requesting substitutions shall contain the same information.
- C. All submittals for approval shall be individually numbered by the Contractor in sequence of order of submission. Resubmittal of revised submittals shall bear the same numbers and be clearly marked Resubmittal No. \_\_\_\_\_.



1.05 COLORS

- A. The Engineer, in noting and marking submittals will use the color green.
- B. The Contractor, in noting and marking submittals shall use the color red.

1.06 ON-SITE RECORDS

- A. Contractor shall have at least one set of complete, approved submittals and shop drawings on the job site at all times when such work is in progress.

END OF SECTION

## SECTION 01380 - CONSTRUCTION PHOTOGRAPHS

### PART 1 - GENERAL

1.01 DESCRIPTION OF WORK: Progress photographs shall be taken at periodic intervals, not to exceed 30 days, showing the extent and progress of the work performed as of that date. Photographs shall be taken at each location of work on the day ending period for which partial payment is requested during the development of stages and condition of work and as directed by the Engineer. Typical lift station and pipeline work shall be photographed at different stages of construction at the direction of the Engineer. Initial pre-construction photographs shall be taken no later than 14 calendar days after notice to proceed and prior to beginning of any construction, and shall show all views of the sites, including adjacent private property.

- A. Final Photographs shall be taken in the same manner and location as specified for Progress Photographs.
- B. At each specified time, take photographs of each major structure or area of work. Furnish 2 prints of each view.

### 1.02 QUALITY ASSURANCE

- A. Camera and Film: Use 35 mm camera with color film as approved by the Engineer.

### 1.03 SUBMITTALS

- A. Submit examples of photographer's work, similar to that required.
- B. Submit photographs with pay request for work photographed.
- C. Submit final binder at final closeout meeting.

### 1.04 NEGATIVES

- A. Negatives shall remain the property of Contractor. Maintain negatives for period of two years from Date of Substantial Completion of entire Project. Furnish additional prints during that time, to Owner and Engineer, at commercial rates applicable at time of purchase.

## PART 2 - PRODUCTS

### 2.01 PRINTS

- A. Prints shall be 4" x 6" minimum, full color, matte finish.
- B. Mounting shall be pocket-type, plastic pages with 1 in. hinged binding edge. Submit photographs in plastic pages with pay request. Binder shall be hard cover, one for each set, size suitable to contain all photographs of project.

### 2.02 IDENTIFICATION

- A. Identify each print on back with:
  - 1. Name of project;
  - 2. Description of view;
  - 3. Time and date of exposure;
  - 4. Key plan, with location of camera and arrow to indicate the direction of view;
  - 5. Name and address of photographer, and
  - 6. Photographer's numbered identification of exposure.

## PART 3 - EXECUTION

### 3.01 TECHNIQUE

- A. Factual presentation with correct exposure and focus for high resolution and sharpness with maximum depth-of-field and minimum distortion.

### 3.02 DELIVERY OF PRINTS

- A. Deliver prints monthly to accompany each request for progress payment. One set of prints each for:
  - 1. Engineer;
  - 2. Owner.

END OF SECTION

## SECTION 01390

### AUDIO-VISUAL DOCUMENTATION

#### PART 1- GENERAL

##### 1.01 SCOPE OF WORK

- A. Prior to commencing work, the Contractor shall have a continuous color audio-visual tape recording taken within the limits of the project to serve as a record of pre-construction conditions.

##### 1.02 CONSTRUCTION SCHEDULE

- A. Tape recordings shall not be made more than 45 days prior to construction in any area. No construction shall begin prior to review and approval of the tapes covering the construction area by the Design Engineer. The Design Engineer shall have the authority to reject all or any portion of a videotape not confirming to specifications and order that it be redone at no additional charge. The Contractor shall reschedule unacceptable coverage within five days after being notified. The Design Engineer shall designate those areas, if any, to be omitted from or added to the audiovisual coverage. All tapes and written records shall become property of Owner.

##### 1.03 PROFESSIONAL ELECTROGRAPHERS (VIDEOGRAPHERS)

- A. The Contractor shall engage the services of a professional electrographer. The color audio-visual tapes shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business of pre-construction color audio-visual tape documentation.

##### 1.04 PRESENCE OF OWNER'S REPRESENTATIVE

- A. At the time of audio-visual documentation, an Owner's representative shall be present to witness the audio-visual documentation. It shall be the Contractor's responsibility to provide written notice at least ten (10) days in advance of the day that the documentation is to be performed. No audio-visual documentation will be accepted unless advance notice is provided to the Owner.

## PART 2 - PRODUCTS

### 2.01 GENERAL

- A. The total audio-video system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project. The video portion of the recording shall produce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of picture imperfection. All video recordings shall, by electronic means, display on the screen the time of day, and the month, day and year of the recording. This time and date information must be continuously and simultaneously generated with the actual recording. The audio portion of the recording shall produce the commentary of the camera operator with proper clarity and free from distortion.
- B. The recording system shall utilize EIA Standard Video and SNTSC compatible color (American TV Standard).

### 2.02 EQUIPMENT

- A. Camera - The color video camera used in the recording system shall have EIA Standard: NTSC type color - 1.0V 75 OHMS. Video output from camera (s) shall be capable of horizontal resolution of 350 lines at center and utilize a minimum of 8:1 Zoom with a 2/3 Newvicon tube for optimum color imagery plus minimum lag through one foot candle (10 Lux).
- B. Recorder - The recording shall be made with a VHS video-cassette recorder. The recorder shall record the color signal with a minimum horizontal resolution of 525 lines, 60 field, NTSC color signal, RF Modulated-72dB.
- C. Video Tape Playback Compatibility - The recorded video tapes shall be compatible for playback with any American TV Standard VHS videocassette player.

## PART 3 - EXECUTION

### 3.01 COVERAGE

- A. The recording shall contain coverage of all surface features located within the construction's zone of influence. The surface features within the construction's zone of influence shall include, but not be limited to, all roadways, pavement, detention ponds, walls, railroad tracks, curbs,

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driveways, sidewalks, culverts, headwalls, retaining walls, buildings, landscaping, trees, shrubbery, and fences. Of particular concern shall be the existence or non-existence of any faults, fractures or defects. Taped coverage shall be limited to one side of the street at any one time and shall include all surface conditions located within the zone of influence supported by appropriate audio description. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

### 3.02 AUDIO CONTENT

- A. Accompanying the video recording of each video tape shall be a corresponding and simultaneously recorded audio recording. This audio recording, exclusively containing the commentary of the camera operator, shall assist in viewer orientation and in any needed identification, differentiation, clarification, or objective description of the features being shown in the video portion of the recording. The audio recording shall also be free from any conversations between the camera operator and any other production technicians.
- B. Video Tape Log - Each video tape shall have a log of that video tape's contents. The log shall describe the various segments of coverage contained on the video tape in terms of the names of the streets or easement, coverage beginning and end, directions of coverage, video unit counter numbers, engineering stationing numbers and the date.

### 3.04 TIME OF EXECUTION

- A. Visibility - All recording shall be performed during times of good visibility. No recording shall be done during periods of significant precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subject and to produce bright, sharp video recordings of those subjects. No taping shall be performed when more than 10 percent of the area to be taped contains debris or obstructions unless otherwise authorized by the Owner or Design Engineer.

### 3.05 CONTINUITY OF COVERAGE

- A. In order to increase the continuity of the coverage the coverage shall consist of a single continuous unedited recording which begins at one end of a particular construction area. However where coverage is required in areas not accessible by conventional wheeled vehicles and smooth transport of the recording system is not possible, such coverage shall consist of an organized interrelated sequence of recordings in various positions along that proposed construction area (e.g., wooded easement area). Such coverage

shall be obtained by walking or by a special conveyance approved by the Owner or Design Engineer.

3.06 COVERAGE RATES

- A. The average rate of travel during a particular segment of coverage (e.g. coverage of one side of a street) shall be directly proportional to the number, size, and value of the surface features within the construction area's zone of influence.

3.07 CAMERA OPERATION

- A. Camera Height and Stability - When conventional wheeled vehicles are used as conveyances for the recording system, the vertical distance between the camera lens and the ground shall not exceed 10 feet. The camera shall be firmly mounted such that the transport of the camera during the recording process will not cause an unsteady picture.
- B. Camera Control - Camera pan, tilt, zoom-in and zoom-out rates shall be sufficiently controlled such that recorded objects will be clearly viewed during video tape playback. In addition, all other camera and recording system controls, such as lens focus and aperture, video level, pedestal, chroma, white balance, and electrical focus shall be properly controlled or adjusted to maximize picture quality.
- C. Viewer Orientation Techniques - The audio and video portions of the recording shall maintain viewer orientation. To this end overall establishing views and visual displays of all visible house and business addresses shall be utilized. In easements where the proposed construction location will not be readily apparent to the tape viewer, highly visible yellow flags shall be placed, by the Contractor, in such fashion as to clearly indicate the proposed center line of construction.

END OF SECTION

## SECTION 01550 - MAINTENANCE OF TRAFFIC

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

Traffic and dust control

#### 1.02 DEFINITIONS

The term "Maintenance of Traffic" as used herein, shall include all facilities, devices, traffic control personal and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance.

#### 1.03 REFERENCES

- A. Florida Department of Transportation Roadway and Traffic Design Standards
- B. Manual on Uniform Traffic Control Devices, latest edition

#### 1.04 SUBMITTALS

Provide traffic control plan. Include proposed signs, markings, barricades, detour routes, sequencing, and phasing for vehicular and pedestrian traffic routes during construction. Submit to Seminole County traffic engineering five (5) working days prior to construction within Seminole County's right of ways, and ten (10) working days prior to the implementation of any proposed roadway closures.

#### 1.05 QUALIFICATIONS

Provide at least one employee in the field (superintendent or forman) who holds an IMSA (International Municipal Signal Association) Work Zone Traffic Control Safety Certification. This certified employee should be on the job site when the traffic control measures are installed and when work is occurring within the zones.

### PART 2 PRODUCTS – Not Used

### PART 3 EXECUTION

#### 3.01 SITE PREPARATION

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- A. Contact property owners affected by construction. Coordinate temporary driveway closures and sequencing, maintain access for all property owners during construction.
- B. Remove existing pavement markings and remove or relocate existing signs as necessary to implement traffic control.
- C. Install signs, markings, barricades in accordance with approved traffic control plan.
- D. Implement lane closures in accordance with the parameters shown on the drawings and in the approved traffic control plan.
- E. Perform work in a manner that will cause minimum interruptions to traffic.
- F. Place excavated material outside roadway clear zones, and away from pedestrian facilities.
- G. All trenches shall be backfilled each day prior to the completion of construction activities.
- H. Where special hazards exist, install traffic control through the use of lighted concrete barriers, barricades, or other such traffic control facilities as needed to ensure public safety.

### 3.02 MAINTENANCE

- A. Inspect traffic control devices on a daily basis to ensure placement of barricades and function of lights is maintained throughout construction.
- B. Wet unstabilized areas as necessary to control dust.
- C. Adjust traffic control devices as required under emergency conditions.

END OF SECTION

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## SECTION 01600 - MATERIAL AND EQUIPMENT

### PART 1 - GENERAL

#### 1.01 RELATED REQUIREMENTS

- A. General provisions of Contract, including General and Special Procedures.
- B. Summary of Work - Section 01010.
- C. Submittal requirements - Section 01300.
- D. Operating and maintenance data - Section 01700.
- E. Record documents of materials - Section 01720.

#### 1.02 SECTION INCLUDES

- A. Administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. Administrative and procedural requirements for handling requests for substitutions.
- C. Requirements for Product List submittal.

#### 1.03 SUBSTITUTION REQUESTS

- A. Submit a separate request for each proposed substitution; 2 copies each on form bound into Project Manual. Document each request with complete data substantiating compliance of proposed substitution with requirements of Contract Documents.
  - 1. Designate Specification Section and Article number.
  - 2. Identify manufacturer by name and address, trade name, model number or catalog number.
  - 3. List product description, performance and test data, applicable reference standards, availability of maintenance service and source of replacement materials.
  - 4. Give itemized comparison of qualities of proposed substitution with specified product, changes required in other elements of the Work due to substitution and effect on Progress Schedule.

5. Give name and address of similar projects on which product was used and date of installation.
  6. Provide cost data comparing proposed substitution with specified product and state the amount of net change to Contract Sum.
- B. During Bidding period, times for submittal of substitution requests are stated in the Instructions to Bidders.
- C. After Bidding period, the Engineer will not consider any written requests from Contractor for proposed substitutions of products. Subsequent requests will be considered only in case of product unavailability or other condition beyond control of the Contractor.
- D. Do not order or install substitute products without written acceptance from the Engineer. Do not imply or indicate substitutions on shop drawings or product data submittals without a separate formal request.
- E. The Engineer will determine acceptability of substitution. Only one request for substitution for each product will be considered. If not accepted, Contractor shall provide specified product.
- F. Request for substitution constitutes a representation that the Contractor:
1. Has investigated the proposed product and determined that it is equal to or superior in all respects to the specified product.
  2. Will provide same or greater warranties for proposed product as for the specified product.
  3. Will coordinate installation of substitution accepted into the Work.
  4. Waives all claims for additional costs due to substitution which may later become apparent.
  5. Agrees to reimburse the Owner for the additional service charges of the Engineer and their Consultants for evaluation and review of the proposed substitution and any additional engineering costs required to incorporate the proposed substitution.
  6. Will make all adjustments, changes, or additions as may be required to make the substituted material or utility perform according to the manufacturer's and the COUNTY'S recommendations and requirements and to make the work complete and functional in all respects, at no additional cost to the COUNTY. Determination if work is complete and functional shall be at the COUNTY'S discretion.

#### 1.04 QUALITY ASSURANCE

- A. To the fullest extent possible, provide products of the same kind, from a single source.
- B. When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- C. Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.
  - 1. Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.
  - 2. Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
    - a. Name of product and manufacturer.
    - b. Model and serial number.
    - c. Capacity.
    - d. Speed.
    - e. Ratings.
- D. The CONTRACTOR shall be responsible for the constructability and performance of any substitute materials requested by the CONTRACTOR and approved by the ENGINEER or by the COUNTY. The CONTRACTOR shall ensure that any approved substitute materials will perform to the intent of the specified materials, at no additional cost or time to the COUNTY, including the costs of installation, testing, repair, or correction of the utility system due to the performance or lack thereof of the substitute material.

#### 1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle products in accordance with the manufacturer's and COUNTY'S recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
  - 1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
- B. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
  - C. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
  - D. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
  - E. Store heavy materials away from the project structure and existing structures in a manner that will not endanger the supporting construction.
  - F. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

## PART 2 - PRODUCTS

### 2.01 PRODUCT SELECTION

- A. Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
  1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
  2. Where available, provide standard products, which meet the specified requirements, of types that have been produced and used successfully in similar situations on other projects.
- B. Product selection is governed by the Contract Documents and governing regulations, not by previous project experience. Procedures governing product selection include the following:

1. Where only a single source product or manufacturer is named, provide the product indicated or submit a request for substitution for any product or manufacturer not named.
2. Where two or more sources of products or manufacturers are named, provide one of the products indicated or submit a request for substitution for any product or manufacturer not named.
3. Where Specifications describe a product or assembly, listing exact characteristics required, without use of a brand or trade name, provide any product or assembly that provides the characteristics and otherwise complies with Contract requirements.
4. Where Specifications require compliance with performance requirements, provide any products that comply with the specified requirements.
5. Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
6. Where Specifications require matching an established Sample, the Engineer's decision will be final on whether a proposed product matches satisfactorily.
7. Where specified product requirements are indicated to be selected from manufacturer's standard colors, patterns, textures, or similar condition, select a product and manufacturer that complies with other specified requirements. The Engineer will select the color, pattern and texture from the product line selected.
8. The description of specific qualities takes precedence over specified reference standards. The description of specific qualities and specified reference standards together take precedence over the named products of designated manufacturers.

C. Source Manufacturers:

1. Primary source products and manufacturers named in a Specification section are listed as standards of quality to which other products will be compared.
2. Source manufacturers named in a Specification section are those manufacturers considered capable of manufacturing products conforming to the specified requirements.
3. The naming of source manufacturers in addition to the primary source product and manufacturer specified does not imply acceptance or approval of just any standard product of that manufacturer. The standard products offered by a additional named source manufacturers shall be equal to or superior in every respect to the specified or primary named source product and shall meet or exceed specification requirements.

## PART 3 - EXECUTION

### 3.01 MANUFACTURER'S INSTALLATION INSTRUCTIONS

- A. When Contract Documents require installation of work to comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to all parties involved in the installation, including copies to the Engineer in accordance with Section 01300.
- B. Handle, install, connect, condition, clean, and adjust products in accordance with such instructions and in conformance with specified requirements. Should job conditions or specified requirements conflict with manufacturer's instructions, notify ENGINEER to request additional instructions prior to installation.
- C. Do not omit preparatory steps or installation procedures unless specifically modified or exempted by Contract Documents.
- D. Do not proceed with work without clear instructions.

END OF SECTION

## SUBSTITUTION REQUEST

PROJECT NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
COUNTY PROJECT NUMBER: \_\_\_\_\_ FROM: \_\_\_\_\_

TO: Seminole County Environmental Services Department  
500 West Lake Mary Blvd.  
Sanford, Florida 32773

\_\_\_ CONTRACTOR \_\_\_ BIDDER \_\_\_ SUPPLIER \_\_\_ MANUFACTURER

HEREBY REQUESTS ACCEPTANCE OF THE FOLLOWING PRODUCT OR SYSTEMS  
AS A SUBSTITUTION IN ACCORD WITH PROVISIONS OF DIVISION ONE OF THE  
SPECIFICATIONS:

1. SPECIFIED PRODUCT OR SYSTEM:  
Generic Description:  
Specification Section No. \_\_\_\_ Art. \_\_\_\_ Para.
2. SUPPORTING DATA:  
\_\_\_ Product data for proposed substitution is attached (description of product,  
reference standards, performance and test data).  
\_\_\_ Sample attached. \_\_\_ Sample will be sent if requested.
3. PRODUCT OR SYSTEM QUALITY COMPARISON:

	SPECIFIED PRODUCT	SUBSTITUTION
Name, brand:	_____	_____
Catalog No.:	_____	
Manufacturer:	_____	
Vendor:	_____	
Significant variations:	_____	
Maintenance Service Available Locally:	___ Yes ___ No	
If yes, location:		
Spare Parts Source:		



Substitution changes Contract Time: Add/Deduct \_\_\_\_ days.

Saving or credit to Owner if accepted: \$\_\_\_\_\_.

Extra cost to Owner if accepted: \$\_\_\_\_\_.

5. PREVIOUS INSTALLATIONS:

Attach list of local similar projects on which proposed substitution was used and dates of installations.

6. STATEMENT OF CONFORMANCE TO SECTION 01600 AND ALL OTHER CONTRACT REQUIREMENTS OF PROPOSED SUBSTITUTION:

I / we have investigated the proposed substitution and:

- a. believe that it is equal or superior in all respects to specified product, except as stated above; and
- b. will provide the same warranty as specified for specified product; and
- c. have included complete cost data and implications of the substitution; and
- d. will pay redesign and special inspection costs caused by the use of this product; and
- e. will pay additional costs to other contractors caused by the substitution; and
- f. will coordinate the incorporation of the proposed substitution in the Work; and
- g. will modify other parts of the Work as may be needed, to make all parts of the Work complete and functioning; and
- h. waive future claims for added cost to Contract caused by the substitution; and
- i. agree to pay to the Owner or Engineer the hourly rate of Seventy Dollars (\$70.00) per hour for cost of Engineer to evaluate and review the proposed substitution.

Name and Title: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_

ENGINEER'S REVIEW AND ACTION:

\_\_\_ Substitution not accepted.

\_\_\_ Resubmit with additional information:

\_\_\_ Substitution is accepted.

\_\_\_ Substitution is accepted, with the following comments:

By: \_\_\_\_\_ Date: \_\_\_\_\_

## SECTION 01700 - CONTRACT CLOSEOUT

### PART 1 - GENERAL

#### 1.01 SUBMITTALS

- A. All facilities to be owned or maintained by the County shall be located on County property, within County or State (FDOT) rights-of-way as applicable or in an easement dedicated to the County for the uses intended. Proof of satisfactory completion of water and sewer facilities, satisfactory bacteriological tests, FDEP Certificates of Completion or Letter of Release, maintenance bonds, itemized construction costs, bills of sale, appropriate legal deeds and executed easements as well as record drawings shall be furnished to the County before final payment is made.
- B. Operating Manuals Data:
  - 1. The Contractor shall furnish to the Engineer required copies of all maintenance manuals, instruction books, parts lists, and installation drawings bound in ringed binders for plug valves and other mechanical equipment furnished under this contract. It shall be the Contractor's responsibility to satisfy the Owner's requirements regarding such data. Manuals, parts lists, etc. shall be presented to Owner at time of final inspection unless specifically requested earlier. All submittals shall be in a binder and neatly indexed and tabbed.
  - 2. Binder: The manuals shall be in 9-inch by 12-inch three-ring binders of a size to facilitate easy turning of the pages. The binders shall have a full size transparent built-in plastic pocket on the front to accommodate a label showing the name and location of the project, date of completion, Engineer name and contractor's name, address and phone number. On the binding edge the binders shall have a clip-on metal frame or built-in plastic pocket to accommodate a label showing the name and location of the project and the date of completion.
  - 3. Index: The Contractor shall furnish a neatly typed index in alphabetical or numerical order. Each major division shall list the equipment in alphabetical or numerical order. Listed under each of these major divisions shall be all items specified on the drawings as furnished with major items listed. These secondary items shall also be listed in alphabetical or numerical order. To the right of each of these equipment designations shall be the tab number under which the information can be found.

4. Tabs: Behind the index, provide numbered tabs beginning with one thru the number required for each type of equipment. Behind the tab, insert all shop drawings, shop-cuts, parts manuals, installation manuals and operation manuals associated with each item furnished. Only one tab will be required for each different material provided. The index designation shall refer to the tab number behind which the information on the equipment can be found.
- C. For utility systems being dedicated to or systems where the design and construction is paid for by the County, a two (2) year maintenance bond, or a Letter of Credit or similar instrument satisfactory to the County, equal to ten percent (10%) of the final utility construction costs shall be posted before Seminole County Utilities will recommend the facilities be accepted by the Board of County Commissioners. See Sections 35.44 and 40.36 of the *Land Development Code*.
- D. Release of Lien Statement:
1. The CONTRACTOR shall submit with his request for final payment sworn statements on the Owner's form from himself and each subcontractor, Material or Labor Supplier who has filed a "Notice to Owner" that all work has been completed and that all bills for labor, materials, and subcontractor's work on the project have been paid for in full.
- E. Record Drawings:
1. The CONTRACTOR shall ensure that all record drawings be field verified, certified, signed and sealed by a State of Florida registered professional land surveyor hired by the CONTRACTOR who will be responsible for the accuracy of all dimensions, locations and elevations in accordance with the Owners requirements and "Minimum Technical Standards." A State of Florida registered professional engineer must also sign and seal the record drawings certifying that the construction is in conformance with the approved construction plans. Record drawings are required prior to final inspection of the project.
  2. The CONTRACTOR is required to maintain the record drawings as construction progresses. The Contractor shall accommodate the Engineer's and the Owner's review and inspection of the record drawings on a schedule, as determined by the Engineer and the Owner to facilitate confirmation of this requirement. The Owner, at their discretion, may delay monthly progress payments to the CONTRACTOR until the requirements of this section are complied

with. The Owner may also withhold additional retainage for failure to comply with the requirements of this section.

3. At least four (4) complete sets of record drawings must be received by the County three (3) full working days prior to final inspection. The record drawings will be compared to the approved construction plans and shall be subject to field verification by the Owner, Engineer, and Contractor before final inspection of the project. Record drawings shall be required for sections of watermains or sewer forcemains that are to be cleared for use by FDEP or other regulatory authorities as needed. No additional compensation shall be provided to the CONTRACTOR for the preparation of these interim record drawings for FDEP clearance purposes.
4. Residential project dimensions are to be referenced from a permanent and easily recoverable physical monument (i.e., fire hydrant, property corner, street intersection, center line of road, etc.). Commercial projects shall be referenced from buildings and other pertinent structures.
  - a. The horizontal location of new water mains, valves, blow offs, meters and/or meter boxes, manholes, force mains, lift stations and reclaimed water lines, and points of connection to existing water mains, force mains, manholes, lift stations, marker balls, and reclaimed water lines shall be referenced by distance to at least two permanent points.
  - b. The vertical location of new and points of connection to existing gravity sewer mains, reclaimed water mains and manholes, lift stations, water mains and force mains shall be referenced by distance to at least one permanent point.
  - c. The location of electronic marker balls installed during construction shall be noted on the record drawings by the symbol "EMB." Dimensions of the actual installed location of all utility lines constructed within an easement shall be shown on the record drawings.
5. Four (4) copies of a site survey of the approved lift station site, if applicable, must be received by the County. The survey shall be certified by a State of Florida registered professional land surveyor and include the legal description of the property.
6. At least one copy of the project CADD file showing all improvements, including the lift station site survey, shall be provided to inspection after the final inspection and prior to acceptance by the Board of County Commissioners.

F. Final Inspection:

1. Final inspection will be held upon completion of the project. The Contractor shall notify the Owner, upon completion, to arrange an inspection tour of the completed project.
2. The Contractor, and the Owner's representatives shall be present for the inspection.

END OF SECTION

## SECTION 01720 - RECORD DRAWINGS

### PART 1 - GENERAL

1.01 DESCRIPTION: The Work covered under this section shall include furnishing the Engineer all information necessary for a complete set of Record Drawings.

1.02 APPLICABLE CODES, STANDARDS AND SPECIFICATIONS: The Record Drawings information shall be in strict accordance with the following codes and standards:

- A. Local county, municipal and utility codes
- B. Department of Environmental Protection (FDEP)
- C. Other Sections of these Specifications

1.03 MATERIALS: The Contractor shall mark on the construction drawings of the Contract Documents all field information.

### PART 2 - PRODUCTS

2.01 RECORD DRAWINGS: The record drawings shall correctly and accurately show all changes from the Contract Documents made during construction and shall reflect surveyed information which shall be performed by a professional engineer or land surveyor registered in the State of Florida. The drawings shall be neat and legible. Show all elevations and horizontal control of all storm sewer, gravity sewers including laterals, electric cables, television cables, telephone cables, force mains, water mains, and reclaimed water mains which are crossed. Recording shall be for all utilities including those shown on the drawings and those exposed during construction.

- A. Water, Reclaimed Water, and Sewer Mains: Record drawings shall show the following field information:
  - 1. Show material used to construct mains.
  - 2. Show location of mains, tees, crosses, bends, terminal ends, valves, manholes, etc., by distances from known above ground reference points (manholes, catch basins, ROW centerlines, etc.).
  - 3. Show location of all sleeves.
  - 4. Show all depth of cover over pipe.
  - 5. Elevation and horizontal control of all gravity sewers, including laterals, pressure sewer mains, etc. which are crossed.

6. Elevation and horizontal control of all pressure water and sewer stubouts including service laterals.
  7. Location of all existing lines and/or utilities encountered during construction.
  8. Location of all marker balls at 100 foot intervals on mains, valves, tees, crosses, terminal ends of sewer laterals, etc. (See Section 02666—Identification and Marking Materials.)
- B. Paving: Record drawings shall show the following information:
1. Paving: As constructed elevations corresponding to plan elevations.
- C. Lift Station: Record drawings shall show the following information:
1. Surveyed layout of all structures, buried valves, conduits and piping.
  2. Revisions and additions to dimensions, elevations or notes.
  3. Emergency pump-out connection location.
  4. Location of connections to existing piping.
  5. Materials used in construction on the site.
  6. Pump test results for working pump rate and TDH.
  7. Other pertinent information.

### PART 3 - EXECUTION

3.01 RECORDS: Daily records of changes in location of piping, fixtures and other items shall be kept and recorded on the record drawings. Seminole County Environmental Services Department requires that subsurface utility improvements have their physical locations surveyed the same day as they are installed (i.e., mains, valves, manholes, etc.). Surveyed locations and elevations are to be available upon request to the County and Engineer.

The Contractor shall review the completed record drawings and ascertain that all data furnished is accurate and truly represents the work actually installed. No Record Drawings information will be accepted from subcontractors.

3.02 SUBMITTAL: The project shall not be considered to be in substantial completion until record drawings have been submitted and accepted by the Engineer. Prior to final payment the record drawings shall be revised by the Contractor to reflect any changes which have occurred since the substantial completion submittal.

END OF SECTION

## SECTION 02104 - PROTECTION OF SHRUBS, TREES AND OTHER PLANTINGS

### PART 1 - GENERAL

1.01 SCOPE: The Work under this section includes the furnishing of all labor, materials, tools and equipment necessary to properly preserve, protect and maintain trees, shrubs and other plantings adjacent to the work that are not to be removed.

1.02 APPLICABLE SECTIONS: For Grassing and Sodding, see Section 02930.

### PART 2 - PRODUCTS - N/A

### PART 3 - EXECUTION

#### 3.01 PROTECTION OF EXISTING TREES AND SHRUBS:

- A. The Contractor shall enclose the trunks of trees adjacent to his work that are not to be removed. The Contractor shall protect them from injury from piled material, from equipment, from his operations, or other functions of Work. Excavating machinery and cranes shall be of suitable type and size and so operated with care to prevent injury to trees not to be removed especially to overhanging branches and limbs.
- B. Cutting of branches, limbs, and roots shall be subject to the approval of the Engineer, and shall be paid for by the Contractor. All cutting shall be smoothly and neatly done without splitting or crushing. In cases of cutting or unavoidable injury to branches, limbs, or trunks of trees, the cut or injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint. All tree trimming and cutting of trees are to be done by a qualified and approved tree surgeon and shall be paid for by the Contractor.
- C. Prior to commencing construction, the Contractor shall inform the private owners of shrubs, plants, etc. in the project area so that the owners of the affected shrubs, plants, etc., may remove them if they so desire; otherwise said plants and shrubs shall be removed by the Contractor, and shall be replanted or replaced in kind by the Contractor upon completion of construction at no additional cost.



- D. The Contractor will be required to replant or replace in kind any sod, shrubs, plants, etc., removed during construction. He will be required to block out sod in neat squares provided it is to be replanted within 48 hours, wrap root area of plants, shrubs, etc., with burlap bags, wet down and keep in good condition for replanting. The Contractor will also be required to replace the topsoil within the limit of the construction in non-pavement areas. Any sod removed and replanted shall be handled in accordance with Section 575 of the DOT Specifications. See Section 02930, Grassing and Sodding, for other requirements.
- E. The Contractor shall notify the Owner of the project at least two weeks prior to the beginning of construction so that he may remove any trees, shrubs, sod, etc., from the construction area.

END OF SECTION

## SECTION 02110 - CLEARING AND GRUBBING

### PART 1 - GENERAL

1.01 DESCRIPTION: Work under this section of the specifications consists of clearing and grubbing for the construction as shown on the plans, and the disposal of materials and debris resulting from the clearing and grubbing operations. The area of construction shall be cleared as required, subject to the approval of the Owner. The extent of clearing shall be minimized to the width required for installation of the work. The Contractor is expected to visit the sites of the work and determine for himself the extent of the clearing and grubbing necessary for his construction operations.

### PART 2 - PRODUCTS - N/A

### PART 3 - EXECUTION

3.01 CLEARING: Clearing only consists of the removal of all trees, living or dead, stumps, down timber, brush, rubbish and all other objectionable debris, from the area to be cleared. Trees, stumps and brush may be cut off flush with the surrounding ground surface or removed with a bulldozer at the option of the Contractor. Should selective clearing be desired, the Engineer will select and mark, or otherwise designate, the trees or ornamentals to remain standing.

3.02 CLEARING AND GRUBBING: On areas specified to be cleared and grubbed, all trees, stumps, down timber, brush and other objects standing on or protruding from the ground shall be removed. All roots shall be grubbed and removed a minimum of 18 inches below the surface of the ground. Holes caused by grubbing operations shall be filled to the level of adjacent ground.

3.03 SELECTIVE CLEARING AND/OR GRUBBING: Special attention shall be given by the Contractor to saving, protecting and preserving any existing trees, shrubs or other vegetation so designated by the Engineer and/or Owner. The Owner or his representative will select and mark, or otherwise designate, trees, ornamentals or other vegetation to be preserved.

3.04 DISPOSAL: All material and debris resulting from clearing, or clearing and grubbing, operations shall be disposed of in a manner approved by the Engineer. It shall be the responsibility of the Contractor to obtain permits for hauling and disposal in areas where such permits are required and he shall be responsible for any and all damage to surrounding property or areas caused by his hauling operations.

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3.05 CLEANUP: In accordance with the GENERAL CONDITIONS.

END OF SECTION

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## SECTION 02140 - DEWATERING

### PART 1 - GENERAL

1.01 DESCRIPTION: The Work to be performed under this section shall include furnishing all equipment and labor necessary to remove storm or subsurface waters from excavation areas in accordance with the requirements set forth and as shown on the drawings.

1.02 APPLICABLE CODES, STANDARDS AND SPECIFICATIONS: The dewatering of any excavation areas and the disposal of the water shall be in strict accordance with the latest revision of all local and state government rules and regulations. The CONTRACTOR shall obtain any required dewatering permit from the appropriate agencies (SJRWMD) prior to commencing dewatering operations.

### PART 2 - PRODUCTS (Not Applicable)

### PART 3 - EXECUTION

3.01 DEWATERING: The CONTRACTOR shall provide adequate equipment for the removal of storm or subsurface waters which may accumulate in the excavation. If subsurface water is encountered, the CONTRACTOR shall utilize suitable equipment to adequately dewater the excavation so that it will be dry for work and pipe laying. A wellpoint system or other ENGINEER approved dewatering method shall be utilized if necessary to maintain the excavation in a dry condition for preparation of the trench bottom and for pipe laying. Dewatering by trench pumping will not be permitted if migration of fine grained natural material from bottom, side walls or bedding material will occur. In the event that satisfactory dewatering cannot be accomplished due to subsurface conditions or where dewatering could damage existing structures, the CONTRACTOR shall obtain the ENGINEER's approval of wet trench construction procedure before commencing construction. Dewatering shall cease in a manner to allow the subsurface water to slowly return to normal levels.

3.02 Dewatering equipment shall meet the following residential sound limits of 67 DB at 15 feet from dewatering equipment. The engine driven pumping equipment shall not be located within 25 feet of any residential unit.

3.03 DISPOSAL: Water pumped from the trench or other excavation shall be disposed of in storm sewers having adequate capacity, canals or suitable disposal pits. CONTRACTOR is responsible for acquiring all permits required to discharge the water and shall protect waterways from turbidity during the dewatering operation. In areas where adequate disposal sites are not available, partially backfilled trenches may be used for water disposal only when the CONTRACTOR's plan for trench disposal is approved in

writing by the ENGINEER. The CONTRACTOR's plan shall include temporary culverts, barricades and other protective measures to prevent damage to property or injury to any person or persons. No flooding of streets, roadways, driveways or private property will be permitted. Engines driving dewatering pumps shall be equipped with residential type mufflers.

3.04 COMPENSATION: Dewatering shall be considered as incidental to the cost of the several bid items required for the installation of the proposed utility and no additional compensation shall be allowed.

END OF SECTION

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## SECTION 02150 - SHEETING AND SHORING

### PART 1 - GENERAL

1.01 SCOPE: The work under this section includes the furnishing of all labor, materials, tools and equipment necessary to prevent cave-in of excavations and trench walls or settlement of areas adjacent to excavations and trench walls.

1.02 GENERAL REQUIREMENTS: The Contractor shall provide and install such sheeting and shoring as required to support the sides of any excavation to prevent earth movement that could endanger the work or workmen, or any existing structures, or to confine the construction within a specified area such as an easement or street right-of-way. Sheeting and shoring shall be used when the angle of repose for sloping of sides cannot be obtained. It shall be the Contractor's responsibility to place this sheeting and shoring for such protective purposes without the Owner's or Engineer's instructions. All sheeting placed below the crown elevation of pipe shall be left in place and trench backfilled in accordance with the applicable sections of the Specifications.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. Steel or wood sheeting may be used at the Contractor's option. Sheeting shall be of adequate strength for the purpose intended.
- B. Where conditions permit, steel drag shields or trench boxes may be used. Voids left by the advancement of the shield shall be carefully backfilled and compacted in accordance with trench backfill requirements.

### PART 3 - EXECUTION

#### 3.01 GENERAL

- A. The Contractor shall provide and install sheeting and shoring as necessary. Sheeting and shoring will be considered as being for Contractor's convenience and benefit, and all costs of furnishing, installing and removing same shall be borne by him. Sheeting may be timber or steel at the Contractor's option unless otherwise specified on the Contract Drawings or elsewhere in these specifications.
- B. Steel sheeting above the crown elevation of pipe may be completely removed when sufficient backfill has been placed to prevent damage to the work and/or existing structures. Care shall be exercised to prevent the

opening of voids during the extraction process. Unless otherwise directed by the Engineer, all timber sheeting shall be cut off thirty (30) inches below grade and left in place, with proper bracing to provide lateral support. All sheeting placed below the crown elevation of pipe shall be cut off above the pipe crown elevations and left in place. No payment will be made for sheeting or drag shields under this Contract. The cost therefore shall be merged with the cost of the items to which the sheeting or drag shields is incidental or appurtenant.

END OF SECTION

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## SECTION 02200 – EARTHWORK

### PART 1 - GENERAL

#### 1.01 SECTION INCLUDES

- A. Preparation of subgrade for building slabs and walks.
- B. Excavation, fill, and backfill.

#### 1.02 QUALITY ASSURANCE

- A. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

#### 1.03 PROJECT CONDITIONS

- A. Locate existing underground utilities in areas of work. Provide adequate means of support and protection during earthwork operations.
- B. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
- C. Do not interrupt existing utilities serving occupied facilities.
- D. The use of explosives is not permitted.
- E. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

#### 1.04 SUBMITTALS - N/A

### PART 2 - PRODUCTS

#### 2.01 SOIL MATERIALS

- A. Acceptable Soil Materials: ASTM D2487 soil classification groups GW, GP, GM, SM, SW and SP. No more than 12 percent of acceptable soil materials shall pass the number 200 sieve.

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- B. Unacceptable Soil Materials: ASTM D2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH and PT.
- C. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand.
- D. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1-1/2 in. sieve and not more than 5 percent passing a No. 4 sieve.
- E. Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2 in. in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter.

### PART 3 - EXECUTION

#### 3.01 EXCAVATION

- A. Foundation Preparation Excavation:
  - 1. Excavate structure area extending at least one foot outside the perimeter of the wall footing limits down to 4 ft. below existing ground surface or 2 ft. below footing bottom whichever is lower.
  - 2. Compact excavation subgrade as specified. Perform field density tests and have subgrade approved before backfilling.
  - 3. Perform backfilling, compacting and testing of foundation excavation in incremental lifts to the level of the footings and slabs as specified.
- B. Excavation is Unclassified, and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.
- C. Unauthorized Excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction. Unauthorized excavation, as well as remedial work directed by Engineer, shall be at Contractor's expense.
- D. Additional Excavation:
  - 1. When unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Engineer.
  - 2. Removal of unsuitable material and its replacement as directed will be paid for in accordance with the lump sum contract price for sitework.

E. Stability of Excavations:

1. Slope sides of excavations in accordance with OSHA regulations and comply with local codes and ordinances having jurisdiction.
2. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
3. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

F. Shoring and Bracing:

1. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.
2. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

G. Dewatering:

1. Contractor is solely responsible for the design, installation, and operation of dewatering systems and their safety and conformity with local codes and regulations.
2. Prevent surface water and subsurface or ground water from flowing into excavations.
3. Do not allow water to accumulate in excavations.
4. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
5. Draw groundwater table down at least one ft. below wetwell slab bottom excavation and maintain at least 2 ft. below the level of compaction of backfill material for wetwell or piping.
6. Draw groundwater table down to a level at least 6 ft. below existing ground surface to permit excavation and compaction of soils beneath wall, piping or equipment foundations. Maintain groundwater table at least 2 ft. below the level of compaction of excavation subgrade and backfill material.

H. Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.

I. Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 ft., and extending a sufficient distance from footings and foundations to permit placing and removal of concrete form work, installation of services, other construction, and for inspection.

1. In excavating for footings and foundations, take care not to disturb bottom of excavation.
  2. Excavate by hand to final grade just before concrete reinforcement is placed.
  3. Trim bottoms to required lines and grades to leave solid base to receive other work.
- J. Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide minimum 6 in. clearance on each side of pipe or conduit.
1. Excavate trenches to depth indicated or required for indicated flow lines and invert elevations.
  2. Where rock is encountered, carry excavation 6 in. below scheduled elevation and backfill with a 6 in. layer of crushed stone or gravel prior to installation of pipe.
  3. For pipes or conduit 5 in. or less, excavate to indicated depths. Hand excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.
  4. For pipes or conduit 6 in. or larger, and other work indicated to receive subbase, excavate to subbase depth indicated, or, if not otherwise indicated, to 6 in. below bottom of work to be supported.
  5. Except as otherwise indicated, excavate for exterior water-bearing piping so top of piping is minimum 3'0" below finished grade.
  6. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.
  7. Backfill trenches with concrete where trench excavations pass within 18 in. of wall footings and which are carried below bottom of such footings, or which pass under wall footings.
- K. Do not backfill trenches until tests and inspections have been made and backfilling authorized by Engineer.

### 3.02 COMPACTION

- A. Compact soil to the following percentages of maximum dry density relationship of the Modified Proctor, ASTM D1557.
1. Structures, Building Slabs and Pavements: Compact subgrade and each layer of backfill or fill material at 98 percent maximum dry density. Compaction shall be performed in 12 in. lifts.

2. Lawn or Unpaved Areas: Compact subgrade and each layer of backfill or fill material at 95 percent maximum dry density. Compaction shall be performed in 12 in. lifts.
  3. Walkways: Compact subgrade and each layer of backfill or fill material at 95 percent maximum dry density. Compaction shall be performed in 12 in. lifts.
- B. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

### 3.03 BACKFILL AND FILL

- A. Place specified soil material in layers to required subgrade elevations:
1. In excavations, use satisfactory excavated or borrow material.
  2. Under grassed areas, use satisfactory excavated or borrow material.
  3. Under walks and pavements, use subbase material, or satisfactory excavated or borrow material, or combination of both. Place shoulders along edges of subbase course to prevent lateral movement with satisfactory excavated or borrow material.
  4. Under steps, use subbase material.
  5. Under building slabs, use drainage fill material.
  6. Under piping and conduit, use subbase material where subbase is indicated under piping or conduit; shape to fit bottom 90 deg. of cylinder.
- B. Backfill excavations as promptly as work permits, but not until completion of the following:
1. Acceptance of construction below finish grade including waterproofing and perimeter insulation.
  2. Inspection, testing, approval, and recording locations of underground utilities.
  3. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.
- C. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.

- D. When existing ground surface has a density less than that specified for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.
- E. Place backfill and fill materials in layers of 8 in. loose depth for material compacted by heavy compaction equipment, (take care and necessary precautions not to cause settlement and/or damage to adjacent slabs, walls, structures, etc.) and 4 in. in loose depth for material compacted by hand operated tampers.
- F. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
- G. Place backfill and fill materials evenly adjacent to structures, without wedging against structures or displacement of piping or conduit. Compaction equipment used within 10 ft. of buried walls and soil supported structures shall not exceed 2000 lbs.

### 3.04 GRADING

- A. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding and as follows:
  - 1. Finish to within not more than 0.10 ft. above or below required subgrade elevations.
  - 2. Walks: Shape surface to line, grade and cross-section, with finish surface not more than 0.10 ft. above or below required subgrade elevation.
  - 3. Pavements: Shape surface to line, grade and cross-section, with finish surface 1/2 in. above or below required subgrade elevation.
- B. Grading Surface of Fill under Building Slabs: Grade smooth and even, free of voids, compacted as specified, and to 1/2 in. below required elevation.

### 3.05 FIELD QUALITY CONTROL

- A. The Contractor shall employ an independent, approved soils testing laboratory to perform soil testing and inspection service for quality control testing during earthwork operations. The testing laboratory shall comply with the latest edition of the "Recommended Requirements for Independent Laboratory Qualification", published by the American Council of Independent Laboratories.

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- B. If the tests, and any subsequent retests, indicate the material and equipment fail to meet the requirements of the Contract Documents, the Contractor shall pay the laboratory costs incurred in such tests.
- C. Testing service is to inspect and approve subgrades and fill layers before further construction work is performed.
- D. Perform field density tests in accordance with ASTM D 1556 (sand cone method) or ASTM D 2167 (rubber balloon method), as applicable.
  - 1. Paved Areas and Structure Slab Subgrade:
    - a. One field density test of subgrade for each 1000 sq. ft., minimum 2 tests.
    - b. One field density test for each layer compacted fill, for each 1000 sq. ft., minimum 2 tests each layer.
- E. Perform density testing along utility pipelines in accordance with ASTM D1557 or AASHTO T180:
  - 1. Two tests for each 300 linear feet of pipeline or fraction thereof per lift of general backfilling in the pipeline trench.
  - 2. One test for each 100 square feet or fraction thereof of backfill around and under structures, with a minimum of two tests per lift.
  - 3. One test per lift per each change in type of fill.
- F. If in the opinion of Engineer, based on testing service reports and inspection, subgrade or fills which have been placed below specified density, provide additional compaction and testing at no additional expense to Owner.
- G. The testing laboratory shall promptly notify the Contractor, Owner, and the Engineer of irregularities or deficiencies of work that are observed during performance of services. Laboratories shall submit one (1) copy each of all reports, signed and sealed by a licensed Professional Engineer or Professional Geologist, directly to the Contractor, Engineer, and Owner. .

### 3.06 CLEANING AND PROTECTION

- A. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

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- B. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- C. Remove excess excavated and waste materials, including unacceptable excavated material, trash and debris, and legally dispose of it off Owner's property.

END OF SECTION

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SECTION 02220  
SITE DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Demolition of designated site structures, retaining walls and foundations and removal of materials from project site.
- B. Disconnecting and capping or removal of identified utilities.
- C. Filling voids in subgrade created as a result of removals or demolition.
- D. Disposal of demolished materials.

1.02 RELATED SECTIONS

- A. Section 02200 - Earthwork
- B. Section 02260 - Finish Grading

1.03 REGULATORY REQUIREMENTS

- A. Conform to applicable State and local codes for demolition of structures, safety of adjacent structures, dust control, and runoff control.
- B. Obtain required permits and licenses from appropriate authorities. Pay associated fees including disposal charges.
- C. Do not close or obstruct roadways, sidewalks, or fire hydrants without appropriate permits.
- D. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

1.04 RECORD DOCUMENTS

Accurately record actual locations of capped utilities and subsurface obstructions that will remain after demolition.

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## 1.05 SEQUENCING

- A. Interruption of facility operations must be kept to a minimum and no interruption of service to the Owner's customers can be allowed.
- B. The abandoned water treatment plant can be demolished at any time.

## 1.06 SCHEDULING

Notify the Owner, utility companies or local authorities furnishing gas, water, electrical, telephone or wastewater service, a minimum of fourteen (14) calendar days prior to starting the work, to remove any equipment owned by them in structures to be demolished and to remove, disconnect, cap or plug their services to facilitate demolition.

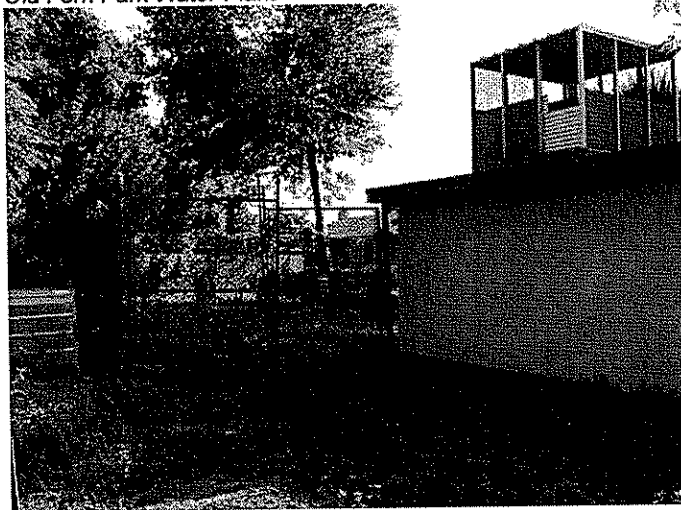
## 1.07 PROJECT CONDITIONS

- A. Owner assumes no responsibility for condition of structures to be demolished.
- B. Conditions existing at time of inspection for bidding purposes will be maintained by Owner as practicable.
- C. Unless otherwise indicated in Contract Documents or specified by the Owner, items of salvageable value to Contractor shall be removed from site and structures. Storage or sale of removed items on site will not be permitted and shall not interfere with other work specified in Contract Documents.
- D. Explosives shall not be brought to site or used to demolish structures.
- E. The following are photos of the abandoned water treatment plant site that is to be demolished.

Old Fern Park Water Plant



Old Fern Park Water Plant



#### 1.08 DISPOSAL OF MATERIALS

Materials that must be removed shall be legally disposed of by the Contractor unless otherwise directed by the Owner.

#### PART 2 PRODUCTS - Not Used

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## PART 3 EXECUTION

### 3.01 PREPARATION

- A. All existing pipelines and utilities shown on the Contract Drawings are not to be interpreted as the exact location or as the only obstacles that may occur on the site. The Contractor shall verify all existing conditions, prior to construction activities, and proceed with caution around anticipated features.
- B. Provide, erect, and maintain erosion control devices, temporary barriers, and security devices prior to construction to protect the public and project personnel from injury due to the demolition work.
- C. Protect existing landscaping materials, appurtenances, and structures which are not to be demolished. Repair damage caused by demolition operations at no cost to Owner.
- D. Prevent movement or settlement of adjacent structures. Provide bracing and shoring as needed.
- E. Mark location of utilities. Protect and maintain in safe and operable condition utilities that are to remain. Prevent interruption of existing utility service to occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities as acceptable to governing authorities and Owner.
- F. Restrict all operations including ingress and egress to the plant site to the property owned by the County and public right-of-way. Due to the proximity of adjacent private property, take special care to not damage private property or encroach onto private property. Limit demolition operations to occur between 9:00 a.m. and 5:00 p.m. Monday - Friday. Contact adjacent property owners prior at least 48 hours prior to commencing demolition to inform them of the proposed work and schedule. Provide each property owner with a contact name and phone number of the Contractor's onsite representative during the demolition operations.

### 3.02 SALVAGE

The Owner will not be salvaging any material from the abandoned water treatment plant site. All material at this site designated to be removed will become property of the Contractor and shall be removed from the site.

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### 3.03 DEMOLITION REQUIREMENTS

- A. Conduct demolition to minimize interference with adjacent structures or pavements.
- B. Cease operations immediately if adjacent structures appear to be in danger. Notify Owner and Engineer. Do not resume operations until directed by Owner.
- C. Conduct operations with minimum of interference to public or private access. Maintain ingress and egress at all times.
- D. Sprinkle work with water to minimize dust. Provide hoses and water connections for this purpose.
- E. Comply with governing regulations pertaining to environmental protection.
- F. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of work.

### 3.04 DEMOLITION

- A. Demolish buildings completely and remove from site using methods as required to complete work within limitations of governing regulations. Small structures may be removed intact when acceptable to Owner and authorities having jurisdiction.
- B. Locate demolition equipment and remove materials so as to prevent excessive loading to supporting walls, floors, or framing.
- C. Demolish concrete and masonry in small sections. Remove slabs-on-grade and below grade construction to a depth of 4 feet below grade. Slabs left more than 4 feet below grade are to have holes punched through the slabs (minimum hole size of 4-inches), with a minimum of one hole per every 50 square feet of slab.
- D. Wherever piping is removed for disposition, adjacent pipe, and headers that are to remain in service shall be blanked off or plugged and then anchored in an approved manner. Remove all process and yard piping and valves which are in conflict with the proposed work and are not to remain in service
- E. Repair or restore any damage done to existing facilities which are to remain, at no cost to, and to the satisfaction of the Owner

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### 3.05 FILLING VOIDS

- A. Completely fill below grade areas and voids resulting from demolition or removal of structures, underground fuel storage tanks, wells, cisterns, etc., using acceptable material as defined in section 02200.
- B. Ensure that areas to be filled are free of standing water, or unsuitable material, trash, roots, and debris prior to fill placement.
- C. Place fill materials in accordance with Section 02200 unless subsequent excavation for new work is required.
- D. Grade surface to match adjacent grades and to provide flow of surface drainage after fill placement and compaction.
- E. Sod all disturbed onsite areas with Bahia sod.

### 3.06 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove from site debris, rubbish, and other materials resulting from demolition operations.
- B. No burning of any material, debris, or trash on-site or off-site will be allowed.
- C. Transport materials removed from demolished structures with appropriate vehicles and dispose off-site to areas that are approved for disposal by governing authorities and appropriate property owners.

### 3.07 CLEANUP

- A. Clean the Project site to a condition satisfactory to the Owner, free from demolished materials, rubbish or debris. Grade the site to meet adjacent contours and provide a positive flow for surface drainage.
- B. Restore items intended to remain that have been damaged by demolition work at no cost to, and to the satisfaction of the Owner.
- C. Return all interrupted utility services to their pre-demolition state and disconnect temporary services, unless otherwise specified.

END OF SECTION

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## SECTION 02260 - FINISH GRADING

### PART 1 - GENERAL

1.01 DESCRIPTION: To bring to finished elevations all earth materials as called for in drawings. This general work includes the completion of finish grading so that surfaces of compacted material are correctly oriented with the requirements of the slab or other component which will rest on the grade at that point.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS:

- A. Fill: All fill shall be clean sand, free from debris, vegetable matter and other deleterious substances.
- B. Topsoil: All topsoil material on the site that is determined by the Engineer to be satisfactory for landscaping and/or grassing operations shall be stockpiled near the excavation limits for such use unless otherwise directed by the Engineer.

### PART 3 - EXECUTION

3.01 GRADING: Fill, backfill and rough grade as necessary to bring entire site level with elevations of undersides of concrete slabs, walks, paving and finished landscaping as indicated on drawings or in specifications.

#### 3.02 FINISH GRADING:

- A. Where elevations are indicated on plans, obtain such finish elevations, and establish uniform slopes of finish grades between indicated elevations.
- B. Where elevations are not indicated, establish and obtain uniform slope from finished spot elevations at the exterior face of the building out to the nearest indicated elevations for finished grades, as shown on plans.

END OF SECTION

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SECTION 02405  
HORIZONTAL DIRECTIONAL DRILLING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipeline Materials and Fittings
- B. Directional Drilling

1.02 RELATED SECTIONS

- A. Section 01550 - Maintenance of Traffic
- B. Section 02240 - Dewatering

1.03 REFERENCES

- A. American Water Works Association (AWWA) latest edition:
  - 1. AWWA C153 - Ductile Iron Compact Fittings for Water Service
  - 2. AWWA C901 - Polyethylene Pressure Pipe and Tubing, ½ Inch Through 3 Inch for Water Service
  - 3. AWWA C906 - Polyethylene Pressure Pipe and Fittings, 4 Inch Through 63 Inch for Water Distribution and Transmission
- B. American Society for Testing and Materials (ASTM) latest edition:
  - 1. ASTM D3261 - Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
- C. Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction, latest implemented edition:
  - 1. Section 555 - Directional Bore.

1.04 SUBMITTALS

- A. Provide technical data for the equipment, method of installation, and proposed sequence of construction. Provide information on how the bore is to be steered and the information recorded.

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- B. Provide information showing staging and pipe stringing areas and site access during pipe joining.
- C. Submit maintenance of traffic plan.
- D. Submit pipe catalog information confirming that pipe, fittings, joints, and other materials conform to the requirements of this Section.
- E. Submit pipe manufacturer's most current calculations regarding tensile load limitations for trenchless installations.
- F. Submit bore logs that clearly indicate the pipe diameter, location (by station), and depth below grade of the installed pipeline, recorded every 20 feet maximum along the pipeline. Submit within 7 days of the completion of each bore.
- G. Provide record drawings. Include on the drawings pipeline horizontal and vertical data recorded every 20 feet along the pipeline.

#### 1.05 QUALITY ASSURANCE

- A. Provide reference documenting successful similar horizontal directional drilling installations by Contractor or, if directional drilling is to be done by a subcontractor, provide references of subcontractor. Provide at least 3 references showing location of project, diameter of pipeline directional drilled, and length of bore. Provide contact names and phone numbers for each reference. Conventional trenching experience or jack and bore experience will not be considered applicable.
- B. Submit certificates of qualifications for persons fusing polyethylene pipe and fittings, and provide documentation showing that the persons making heat fusion joints have received training in the manufacturer's recommended procedure. Persons fusing polyethylene pipe and fittings shall have a minimum of 2 years experience fusing pipe and shall have received training on the equipment to be utilized.
- C. If requested, provide training from manufacturer's certified trainers on the manufacturer's recommended butt fusion and saddle fusion procedures to the installation personnel, and to inspectors representing the Owner.

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## PART 2 PRODUCTS

### 2.01 BORING EQUIPMENT

The size of the horizontal directional drill rig used shall be the industry standard size needed based on drilling distance, pipe diameter, and soil conditions.

### 2.02 POLYETHYLENE PIPE, FITTINGS, AND ACCESSORIES

- A. Polyethylene pipe and fittings 4-30 inch diameter shall be in accordance with AWWA C906, standard code designation PE 3408. Pipe 4-30 inch diameter shall be DR11, PC 160. Pipe 36-40 inch diameter shall be DR 13.5, PC 130. The pipe sizing shall be in accordance with Ductile Iron Sizing System (DIOD).
- B. Polyethylene mechanical joint adapters and flange adapters shall be manufactured in accordance with AWWA C906. Mechanical joint adapters shall be fitted with gland rings pressure rated equal to or greater than the mating pipe, and shall be made with sufficient through-bore length to be clamped in a heat fusion joining machine without the use of sub-end holder. The sealing surface of the flange adapter shall be machined with a series of small v-shaped grooves to provide gasketless sealing, or to restrain the gasket against blow-out.
- C. Glands, bolts, and gaskets shall be manufactured in accordance with AWWA C153. Bolts and nuts shall be grade 2 or higher.

### 2.03 POLYETHYLENE (PE) PRESSURE PIPE AND TUBING, JOINTS AND FITTINGS (½ INCH THROUGH 3 INCH)

- A. Polyethylene tubing ½ -3 inch diameter for services that are directional bored shall be polyethylene tubing in accordance with AWWA C901, standard code designation PE 3408, DR 9 (outside diameter based dimension ratio), PC 200, and shall be NSF approved.
- B. Joints in SDR-PR PE pipe shall be butt heat fusion or socket heat fusion type.
- C. Fittings shall be manufactured of the same material as the pipe and shall be of the same DR.
- D. Provide adapters as required to join PE pipe-to-pipe, fittings and equipment of other materials.

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## 2.04 PIPELINE IDENTIFICATION

Pipeline identification shall be in accordance with Section 02666.

## 2.05 LOCATING WIRE

Locating wire shall be color-coded 12 gauge continuous insulated wire. Color coding shall be similar to pipeline identification colors. Three locate wires shall be pulled with the pipe.

# PART 3 EXECUTION

## 3.01 GENERAL

- A. Locate positions of entry and exit pits, establish elevation and horizontal datum for bore head control, and lay out pipe assembly area. Lay out and assemble pipe in a manner that does not obstruct adjacent roads, and commercial or residential activities adjacent to construction areas.
- B. Proposed deviations from the bore path due to underground obstructions shall be approved by the Engineer prior to construction.
- C. As-built variance from designed borepath shall be within 6 inches in the vertical plane and within 2 feet in the horizontal plane.
- D. Final acceptance including final payment of directional bored pipelines will not be made until directional bore logs have been submitted and the information on the bore logs documents the depth of the installed pipeline is in accordance with these specifications.

## 3.02 DIRECTIONAL DRILLING

- A. The installation of pipeline by directional drilling shall be within the limits indicated on the drawings.
- B. Install erosion control measures and dewater as required.
- C. Steering of the bore must be performed with a method approved by the boring equipment manufacturer. Such methods include walkover, wire line, wire line with surface grid and other accepted methods. Use a locating and tracking system capable of ensuring that the proposed installation is installed as intended. The locating and tracking system must provide information on:

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1. Clock and pitch information
  2. Depth
  3. Transmitter temperature
  4. Battery status
  5. Position (x,y)
  6. Azimuth, where direct overhead readings (walkover) are not possible (i.e. subaqueous or limited access transportation facility)
- D. Ensure proper calibration of all equipment before commencing drilling operation. Take and record alignment readings or plot points such that elevations on top of and offset dimensions from the center of the product to a permanent fixed feature are provided. Such permanent fixed feature must have prior approval of the Engineer/Owner. Provide elevations and dimensions at all bore alignment corrections (vertical and horizontal) with a minimum distance between points of 20 feet. Provide a sufficient number of elevations and offset distances to accurately plot the vertical and horizontal alignment of the installed product. A minimum of three elevation and plot points are required.
- E. The depth of the directional drilling shall be the minimum necessary to prevent surface heave, unless the drawings require the installation to be at deeper depths. In no case shall mains 4" and larger have less than 4-ft cover at road crossings. Any proposed changes to the depth of the directional bore from what is shown on the drawings must be approved by the Engineer in writing, prior to commencement of drilling.
- F. Borings shall be conducted using a mechanical boring head, assisted by and cooled by drilling fluid of low pressure and volume. Material Safety Data Sheets must be provided and approved by the Engineer for all drilling slurry compounds.
- G. Back reaming shall be conducted to enlarge and prepare the bore hole for pipe installation. Minimize potential damage from soil displacement or settlement by limiting the ratio of the bore hole to the product size. The size of the back reamer bit or pilot bit, if no back reaming is required, shall be limited relative to the product diameter to be installed as follows:

Maximum Pilot or Back-Reamer Bit Diameter (When Rotated 360 Degrees)	
Nominal Pipe Diameter (In)	Bit Diameter (In)
4	8
6	10
8	12

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10	14
12 and larger	Pipe Outside Diameter Plus 6 In.

- H. Drilling fluids are to use a mixture of bentonite clay or other approved stabilizing agent mixed with potable water with a minimum pH of 6.0 to create the drilling fluid for lubrication and soil stabilization. Vary the fluid viscosity to best fit the soil conditions encountered. Do not use any other chemicals or polymer surfactants in the drilling fluid without written consent from the Engineer. Certify to the Engineer in writing that any chemicals to be added are environmentally safe and not harmful or corrosive to the facility. Water for mixing the drilling fluid shall be potable water, procured by the Contractor.
- I. Ensure adequate removal of soil cuttings and stability of the bore hole by monitoring the drilling fluids such as the pumping rate, pressures, viscosity and density during the pilot bore, back reaming and pipe installation. Obtain the Engineer's approval of the location and all conditions necessary to construct relief holes to relieve excess pressure and ensure the proper disposition of drilling fluids is maintained.
- J. Minimize heaving during pull back. The pull back rate used shall maximize the removal of soil cuttings without building excess down hole pressure. Contain excess drilling fluids at entry and exit points until they are recycled or removed from the site or vacuumed during drilling operations. Entry and exit pits are to be of sufficient size to contain the expected return of drilling fluids and soil cuttings.
- K. Ensure that all drilling fluids are disposed of or recycled in a manner acceptable to the appropriate local, state, or federal regulatory agencies. If in the drilling process it becomes evident that the soil is contaminated, contact the Engineer immediately. Do not continue drilling without the Engineer's approval.
- L. Install the carrier in the bore hole within the same day that the pre-bore is completed to ensure stability.

### 3.03 PIPE JOINING

- A. High density polyethylene pipe shall be heat fused and pressure tested as per manufacturer's guidelines before installation in the bore hole. During assembly and prior to pullback, pipe must be laid out in such a way as to minimize interference to pedestrian and vehicular traffic.

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- B. Branch connections to the main shall be made with polyethylene saddle fittings or mechanical joint ductile iron tees.
- C. Joints between plain end polyethylene pipes and polyethylene fittings shall be made by butt fusion, and joints between the polyethylene main and saddle branch polyethylene fittings shall be made using saddle fusion using only procedures that are recommended by the pipe and fitting manufacturer. External and internal beads shall not be removed.
- D. Connect polyethylene pipe to hydrants, valves, and ductile iron fittings using a mechanical joint adapter with a gland ring. Place gland ring behind adapter prior to fusing. Fuse using an electrofusion coupling in accordance with manufacturer's recommendations. After fusing, connect to mechanical joint. Restrain all non-polyethylene pipe and pressure test connections as required in individual pipeline specification sections.
- E. Connect polyethylene pipe to above grade valves and fittings using mechanical flange adapters. The flange adapters are to be self-restrained.
- F. Install all mechanical joints and flange connections in accordance with the manufacturer's recommended procedure. At least 1 hour after initial assembly, flange connections shall be re-tightened following the tightening pattern and torque step recommendations of the manufacturer. The final tightening torque shall be 100 ft-lbs or less as recommended by the manufacturer.
- G. Install required locator wire (if any) along polyethylene pipe prior to pulling through bore hole. Tape wire to pipe every 5 feet minimum along the pipeline.
- H. After pulling pipe, clean exposed ends for installation of fittings, test locator wire for continuity.

### 3.04 BORING FAILURE

- A. If an obstruction is encountered during boring which prevents completion of the installation in accordance with the drawings and specifications, either remove the pipe or abandon the pipe in place at the discretion of the Engineer.
- B. If pipe cannot be withdrawn and Engineer approves abandoning the pipe in place, cut pipe off at least 3 feet below ground surface, fill annular

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space and pipe with excavatable flowable fill and cap ends of pipe with blind flange.

- C. In the event of failure to install pipe, retain possession of pipe and remove it from the site.
- D. Upon approval of the Engineer, fill the abandoned bore hole with excavatable flowable fill.
- E. Submit a new installation procedure and revised plans to the Engineer for approval before resuming work at another location.
- F. If, during construction, damage is observed to the facility, cease all work until resolution to minimize further damage and a plan of action for restoration is obtained and approved by the Engineer.
- G. If the submitted boring logs indicate the installed alignment does not meet vertical or horizontal alignment requirements, the boring is considered a failure, and the directional bored pipeline shall be either re-bored or otherwise remedied at the discretion of the Owner.

### 3.05 DISPOSAL OF SURPLUS FLUIDS

- A. All drill fluid excess shall be contained in entry and/or exit pits and pumped as needed into additional on-site storage tanks, tanker trucks, vacuum trucks, etc. Dispose of excess drill fluid offsite as allowed by local rules and regulations.
- B. Dispose of all material not needed or not suitable for backfilling over or around the entry and receiving pits. The disposal shall be subject to local codes and regulations.

### 3.06 RESTORATION

After extraction, drill fluids, pits, work areas, staging and storage areas are to be restored to equal or better condition than pre-construction condition.

### 3.07 TESTING AND DISINFECTION

- A. After pulling pipe into position, but before attachment of adjacent sections of pipe, disinfect in accordance with Section 02675.

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- B. Test the locate wire for continuity and submit report documenting the continuity testing. Repair or replace locate wire at failed test locations as directed by Owner.
- C. Pressure test all installed pipelines in accordance with Section 02675.

END OF SECTION

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## SECTION 02545 - CASING PIPE - JACK & BORE/OPEN CUT

### PART 1 - GENERAL

#### 1.01 DESCRIPTION

- A. Scope of Work: Furnish all material, equipment, transportation, tools, and labor to install casing pipe by jack and bore or open cut method, masonry plugs, casing spacers, sand fill and all related excavation, backfill, testing and other work for a complete job.

#### 1.02 REFERENCES

- A. American Water Works Association (AWWA) and American National Standards Institute (ANSI) latest edition:
  - 1. AWWA C203 - Coal Tar Protective Coatings and Linings for Steel Water Pipelines, Enamel and Tape, Hot Applications
- B. American Society for Testing and Materials (ASTM) latest edition:
  - 1. ASTM A139 - Electric Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)

#### 1.03 QUALITY ASSURANCE

- A. Pipe Inspection: The Contractor shall obtain from the casing manufacturers a certificate of inspection to the effect that the casings supplied for this Contract have been inspected at the plant and that they meet the requirements of these specifications. All casings shall be subjected to visual inspection at time of delivery by rail or truck, also just before they are lowered into the trench to be laid.

#### 1.04 SUBMITTALS

- A. Certifications: Supplier of casing shall certify conformance to these specifications.
- B. Laying schedule including length, diameter and thickness of casing for each crossing.
- C. Casing spacers.

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ISSUED PER ADD. NO. 1



## 1.05 QUALIFICATIONS

Provide reference documenting successful jack and bore installations by Contractor or, if jacking and boring is to be done by a subcontractor, provide references of subcontractor. Provide at least 3 references showing location of project, diameter of casing, and length of jack and bore. Provide contact names and phone numbers for each reference.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Steel casings shall conform to the requirements of ASTM Designation A139 (straight seam pipe only) Grade "B" with minimum yield strength of 35,000 psi. Pipe shall be seamless or have no more than one (1) longitudinal weld. Field and shop welds of the casing pipes shall conform to the American Welding Society (AWS) standard specifications. Field welds shall be complete penetration, single-bevel groove type joints. Welds shall be air tight and continuous over the entire circumference of the pipe and shall not increase the outside pipe diameter by more than 3/4-inch. A bituminous coating of coal tar varnish or asphalt base paint, one-mil thick shall be applied by the factory. The casing pipes shall have the minimum nominal diameter and wall thickness as shown on the following table. It is the Contractor's responsibility to ensure the steel casing is large enough to accommodate the carrier pipe, restrainers, and casing spacers.

CARRIER PIPE NOMINAL SIZE	CASING PIPE OUTSIDE DIAMETER INCHES	WALL THICKNESS INCHES
8	16" - 20"	0.250

- B. Carrier Pipe Support: Carrier pipes inside of steel casing pipe shall be supported by casing spacers at no more than 10 feet between spacers but not more than manufacturer's recommendations. Each spacer shall be 12 inches wide and manufactured of minimum 14 gauge Type 304 steel or 14 gauge steel with fusion bonded PVC coating. Spacers shall be lined with a 90-mil PVC liner. All stainless nuts and bolts shall be corrosion resistant and compatible with the respective steel band. Each spacer shall have a minimum of 4 runner supports manufactured of a high molecular weight polymer plastic. The runner supports shall be of adequate height to position the carrier pipe in the center of casing with a minimum top clearance of 1/2 inch. All casing spacers larger than a 36-inch diameter

(carrier pipe) shall be factory designed, taking into consideration the weight of the carrier pipe filled with water. All calculations and drawings shall be submitted to the Engineer for review. Casing spacers shall be manufactured by Advanced Products and Systems, Cascade Manufacturing, Pipeline Seal and Insulator or an approved equal.

- C. Pipe Handling: Care shall be taken in loading, transporting, and unloading to prevent damage to the pipe or coatings. Pipe shall not be dropped. All piping shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe or coatings shall be repaired to the satisfaction of the County.

### PART 3 - CONSTRUCTION REQUIREMENTS

- A. Work Coordination: It shall be the Contractor's responsibility to perform the boring and jacking work in strict conformance with the requirements of the agency in whose right of way or easement the work is being performed. Any special requirements of the agency such as insurance, maintenance of traffic, etc. shall be strictly adhered to during the performance of Work.
- B. Dewatering: Dewatering through the casing during construction shall not be permitted. All dewatering methods shall be approved by the County before construction work begins.
- C. Jacking Pit: Excavation adjacent to the roads shall be performed in a manner to adequately support the roads. Bracing, shoring, sheeting or other supports shall be installed as needed. Contractor install suitable reaction blocks for the jacks as required. Jacking operations shall be continuous and precautions shall be taken to avoid interruptions, which might cause the casing to "freeze" in place. Upon completion of jacking operations, the reaction blocks, braces, and all other associated construction materials shall be completely removed from the site.
- D. Correct line and grade shall be carefully maintained. Earth within the casing shall not be removed too close to the cutting edge in order to prevent the formation of voids outside the casing. If voids are formed, they shall be satisfactorily filled by pumping with grout.
- E. Carrier pipe joints inside of steel casing pipe shall be restrained.
- F. Install casing so the ends are a minimum of 4-ft beyond the edge of pavement at road crossings. The sections of steel casing shall be field welded in accordance with the applicable portions of AWWA C206 and AWS D7.0 for field welded pipe joints. Contractor shall wire brush the

welded joints and paint with Inertol Quick Drying Primer 626 by Koppers Company or approved equal. After completion of jacking, Contractor shall clean the interior of the casing of all excess material.

- G. The ends of the casing shall be filled with concrete mortar or rubber type casing end seal, as manufactured by Cascade Waterworks Manufacturing, PSI Model C or Model W or approved equal.
- H. Casing Protection/Damage: Should the casing pipe be damaged, such damaged portion shall be removed and an alternate installation made after approval is obtained by the Owner.
- I. Open Cut: Correct line and grade shall be carefully maintained. Add-on sections of casing pipe shall be full-ring welded to the preceding length, developing watertight total pipe strength joints. Following placement of the casing pipe, masonry plugs shall be installed at each open end. Said plugs shall be suitable for restraining the external earth load, while allowing internal drainage.

END OF SECTION

## SECTION 02570 - PAVEMENT AND CONCRETE REPLACEMENT

### PART 1 - GENERAL

1.01 DESCRIPTION OF WORK: The work under this section includes constructing or replacing asphaltic concrete pavement or concrete sidewalks and driveways as shown on the drawings or disturbed as a result of construction.

### 1.02 QUALITY ASSURANCE

- A. Codes and Standards: Comply with applicable sections of F.D.O.T. Specifications and local governing regulations.
- B. The mixture, placement, and curing of all paving and concrete work shall be in accordance to Florida D.O.T. Specifications.

1.03 SUBMITTALS: Furnish manufacturer's product data, design mixes, test reports, and materials certifications.

### 1.04 JOB CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities, as specified under Section 00920, paragraph 1.07.
- B. Utilize flagman, barricades, warning signs and warning lights as required.

1.05 RESTORATION: All surfaces shall be completed as soon as possible. In no case shall the replacement operation be unfinished for more than two weeks after backfilling unless otherwise directed by the ENGINEER. Replace all damaged or cut pavement due to CONTRACTOR's operations; restore all pavement outside of trench area that is damaged by the CONTRACTOR at no expense to the Owner. It may become necessary to install temporary pavement in areas involving utility work owned by the COUNTY. This temporary pavement shall meet all requirements of the this Section and shall be installed at no additional compensation.

1.06 GUARANTEE: All restored areas within the public right-of-way shall be guaranteed for two years. In the event of settlement of paved areas more than 1/4 in. below the undisturbed adjacent permanent pavement, the CONTRACTOR shall make the necessary repairs to restore the pavement level within ten calendar days after notification by the Owner. The cost of such repairs shall be paid by the CONTRACTOR.

## PART 2 - PRODUCTS

2.01 BASEROCK: Limerock, shellrock and local rock shall conform to DOT Specifications, Section 911.

### 2.02 ASPHALTIC CONCRETE

- A. Prime and Tack Coats: Prime and tack coats shall be applied to the prepared baserock. Prime coat shall be cutback asphalt, Grade RC-70, MC-30 or MC-70, complying with DOT Specifications, Articles 300-1 through 300-7, applied at the average rate of 0.15 gallon per sq yd.

Tack coat shall be emulsified asphalt, Grade RS-2, complying with DOT Specifications, Articles 300-1 through 300-7 respectively, applied at the average rate of 0.10 gallon per sq yd. The bituminous quantities are considered as average and are subject to some variation at the discretion of the ENGINEER and at no additional cost.

- B. Plant Mix Wearing Surface: A plant mix wearing surface course shall be constructed on the prepared limerock base. Materials and construction shall conform with the requirements of DOT Standard Specifications for Type II modified "Asphaltic Concrete Surface Course", Section 332, Article 332-1 through 332-4. The finished pavement replacement shall be smooth and even with, or slightly above, the existing abutting pavement, but shall not have any appreciable bump due to this slight elevation.
- C. Rock, Gravel or Marl Replacement: Roads, streets or driveways constructed of rock, gravel or marl shall be restored to a condition equal to or better than prior to construction.

### 2.03 CONCRETE MATERIALS

- A. Forms: Steel or wood for each type of use of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.
1. Use flexible spring steel forms or laminated boards to form radius bends as required.
  2. Coat forms with a non-staining form release agent that will not discolor or deface the surface of the concrete.
- B. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, AASHTO M55 (ASTM A185).

- C. Concrete Materials: Comply with requirements of F.D.O.T. Section 345 for concrete materials, admixtures, bonding materials, curing materials, and others as required.
- D. Epoxy Resin Grout: Type N as specified in F.D.O.T. Section 926.
- E. Aggregate, brick or other material required to match existing driveway or walk shall be as approved by the ENGINEER.

#### 2.04 CONCRETE MIX, DESIGN AND TESTING

- A. Comply with requirements of applicable F.D.O.T. Section 345 for concrete mix design, sampling and testing, and quality control, and as herein specified.
- B. Design the mix to produce standard weight concrete consisting of portland cement, aggregate, air-entraining admixture and water to produce the following properties.
  - 1. Compressive Strength - Class B, 3,000 psi for walks and curbs.
  - 2. Compressive Strength - Class A, 4,000 psi for driveways.
  - 3. Air Content: 3% to 6%
- C. Concrete placement slump shall not exceed plus or minus 1 inch from approved design slump.

### PART 3 - EXECUTION

3.01 PAVEMENT REPLACEMENT: Replace pavement in accordance with the details shown on drawings, or as required by installation of the proposed utilities, or as directed by the Owner.

The baserock shall be placed and compacted in accordance with the DOT Specifications, Section 200. Application of the tack coat shall follow the application of the prime coat immediately prior to the placing of the wearing surface course.

3.02 EDGE TRIMMING: Trim edges of the existing pavement with a concrete saw or other approved method to provide a clean, straight edge.

3.03 PAVEMENT MARKINGS: Repaint, stripe or otherwise mark pavement to match pre-existing conditions, using DOT approved materials and procedures, in accordance with Section 02577.

### 3.04 SIDEWALK, CONCRETE DRIVEWAY, CURB AND GUTTER REMOVAL AND REPLACEMENT

#### A. Surface Preparation:

1. Remove loose material from the compacted subbase surface immediately before placing concrete.
2. Proof-roll prepared subbase surface to check for unstable areas and the need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving. Comply with requirements of F.D.O.T. Section 230, paragraph 230-6.

#### B. Form Construction:

1. Set forms to the required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of the work and so that forms can remain in place at least 24 hours after concrete placement.
2. Check completed formwork for grade alignment to the following tolerances:
  - a. Top of forms not more than 1/8" in 10'.
  - b. Vertical face on longitudinal axis, not more than 1/4" in 10'.
3. Clean forms for reuse immediately after use, and coat with form release agent as often as required to ensure separation from concrete without damage.

#### C. Concrete Placement:

1. Do not place concrete until subbase and forms have been checked for line and grade. Moisten if required to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are completed to required finish elevation and alignment. Use special colors or aggregate as required to match existing material.
2. Place concrete using methods which prevent segregation of the mix. Consolidate concrete along the face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care

to prevent dislocation of reinforcing, dowels and joint devices. Do not use vibrators to push or move concrete in forms or chute.

3. Deposit and spread concrete in a continuous operation between transverse joints, as far as possible. If interrupted for more than 1/2 hour, place a construction joint.
4. Curbs and Gutters: Automatic machine may be used for curb and gutter placement at CONTRACTOR's option. If machine placement is to be used, submit revised mix design and laboratory test results which meet or exceed the minimum herein specified. Machine placement must produce curbs and gutters to the required cross-section, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete as specified.
5. Joints: Construct expansion, weakened-plane (contraction), and construction joints true-to-line with face perpendicular to surface of the concrete, unless otherwise indicated. Construct transverse joints at right angles to the centerline, unless otherwise indicated. When joining existing structures, place transverse joints to align with previously placed joints, unless otherwise indicated.
  - a. Weakened-Plane Joints: Provide weakened-plane (contraction) joints sectioning concrete into areas as shown on the drawings. Construct weakened-plane joints for a depth equal to at least 1/4 concrete thickness, by sawing within 24 hours of placement or formed during finishing operations. Place joints at intervals not to exceed 10' if not otherwise indicated.
  - b. Construction Joints: Place construction joints at the end of all pours and at locations where placement operations are stopped for a period of more than 1/2 hour, except where such pours terminate at expansion joints. Construction joints shall be as shown or, if not shown, use standard metal keyway-section form of appropriate height.
  - c. Expansion Joints:
    - (1) Provide premolded joint filler for expansion joints abutting concrete curbs, catch basin, manholes, inlets, structures, walks and other fixed objects, unless otherwise indicated.
    - (2) Locate expansion joints at 30' o.c. for concrete walks unless otherwise indicated.
    - (3) Extend joint fillers full-width and depth of joint, and not less than 1/2" below finished surface where joint sealer



- is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface.
- (4) Furnish joint fillers in one-piece lengths for the full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler sections together. Pieces shorter than 4" shall not be used unless specifically shown as such.
  - (5) Protect the top edge of the joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.
  - (6) Fillers and Sealants: Comply with the requirements of these specifications for preparation of joints, materials installations, and performance, and as herein specified.

D. Concrete Finishing:

- 1. After striking-off and consolidating concrete, smooth the surface by screening and floating. Use hand methods only where mechanical floating is not possible. Adjust the floating to compact the surface and produce a uniform texture.
- 2. After floating, test surface for trueness with a 20' straightedge. Variations exceeding 1/3" for any two points within 10' shall not be acceptable. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.
- 3. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round 10 1/2" radius, unless otherwise indicated. Eliminate any tool marks on concrete surface.
- 4. After completion of floating and when excess moisture or surface sheen has disappeared broom finish sidewalks by drawing a fine-hair broom across concrete surface, perpendicular to a line of pedestrian traffic. If existing material has another finish, match existing finish.
- 5. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas.

- E. CURING: Protect and cure finished concrete paving and walks, complying with applicable requirements of F.D.O.T. Section 350. Use moist-curing

methods for initial curing whenever possible of approved concrete curing compounds.

F. Repairs and Protections:

1. Repair or replace broken or defective concrete, as directed by ENGINEER.
2. Drill test cores where directed by ENGINEER, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy resin grout.
3. Protect concrete from damage until acceptance of work. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
4. Sweep concrete pavement and wash free of stains and discolorations, dirt and other foreign material just prior to final inspection.

3.05 FIELD QUALITY CONTROL

- A. General: Repair or remove and replace unacceptable asphalt or concrete paving, sidewalk or curb and gutter as directed by the ENGINEER.
- B. Thickness: In-place compacted asphalt thickness will not be acceptable if exceeding following allowable variation from required thickness.
  1. Base Course - 1/2 inch, less than specified.
  2. Surface course - 1/4 inch, more than specified.
- C. Surface Smoothness: Test finished surface of each asphalt concrete course for smoothness, using 10 foot minimum straightedge applied parallel with, and at right angles to direction of paved area. Surface will not be acceptable if exceeding the following tolerances for smoothness.
  1. Wearing Course Surface - 3/16 inch noncumulative.
- D. Surface Elevation: Actual surface elevations shall be within  $\pm 0.05$  feet of specified or indicated elevations at any given point. Surface elevations between any two given points shall be interpolated from a direct line between

the two points. Pavement exceeding actual elevation tolerances of more than 0.05 feet at any two points within a distance of 15 feet will not be acceptable.

- E. Testing: Bearing value samples and core samples will be obtained and tested by the COUNTY's approved testing laboratory for approximately each 100 square yards of asphalt and concrete pavement area, as directed by the ENGINEER. Any rework resulting from any test revealing construction not to be within the limits stated herein, or by FDOT standards, will be performed immediately upon notification of the ENGINEER.
- F. If the test results indicate the material or equipment complies with the Contract Documents, the Owner shall pay for the cost of the testing laboratory. If the tests, and any subsequent retests, indicate the material and equipment fail to meet the requirements of the Contract Documents, the CONTRACTOR shall pay the laboratory costs incurred in such tests.

END OF SECTION

## SECTION 02600 - PIPE AND FITTINGS FOR POTABLE WATER

### PART 1 GENERAL

- 1.01 DESCRIPTION OF WORK: Work under this section consists of furnishing all materials, supplies, equipment and labor in accordance with the requirements set forth herein and as shown on the drawings for furnishing and installing water pipe and appurtenances.
- 1.02. APPLICABLE CODES, STANDARDS AND SPECIFICATIONS: The Work under this Contract shall be in strict accordance with the following codes and standards.
- A. Local, county and municipal codes.
  - B. American Society for Testing and Materials (ASTM).
  - C. American National Standards Institute (ANSI).
  - D. American Water Works Association (AWWA).
  - E. American Association of State Highway and Transportation Officials (AASHTO).
  - F. Florida Department of Transportation Specifications (FDOT).
  - G. Federal Specifications.
  - H. National Sanitation Foundation (NSF).
  - I. United States Department of Commerce Commercial Standards (CS).
  - J. All local government rules and regulations.
- 1.03 SUBMITTALS
- A. Manufacturer's Data: Prior to delivery, submit manufacturer's descriptive literature, catalog cut sheets, technical data and any other necessary information to show proposed products conform with the contract documents.
  - B. Shop Drawings: The Contractor shall submit shop drawings for all equipment and materials to Seminole County Environmental Services Department. Include details of pipe and fitting products, pipeline drawings, laying schedules, underground structures, connections,

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restraints, and anchors. At a minimum product shall meet Seminole County Water and Sewer Standards as contained in the Land Development Code.

- C. Certifications: The Contractor shall submit a certification from the pipe manufacturer that the pipe and fittings supplied have been inspected at the plant and meet these specifications and all applicable standards. All lined pipe shall be certified by an independent testing laboratory; and meets all requirements of these specifications. Contractor shall provide certification that PVC pipe bears National Sanitation Foundation seal of approval for potable water pipe.

#### 1.04 MATERIALS AND EQUIPMENT

Unless otherwise specified or shown on the drawings, materials and equipment shall be the standard product of a manufacturer and shall comply with the Contract Documents and applicable standards for such materials or equipment.

#### 1.05 WORKMANSHIP

All materials and equipment shall be installed in accordance with the manufacturer's instructions and to these Contract Documents. The Contractor shall notify the Engineer when the manufacturer's instructions conflict with these specifications.

#### 1.06 SITE MAINTENANCE

The Contractor shall take the necessary steps to prevent objectionable blowing or drifting of dust, sand or other debris where the construction occurs in residential, commercial or other developed areas.

#### 1.07 STORAGE OF MATERIALS AND EQUIPMENT

The Contractor shall provide space for storage of materials and equipment. Pipe strung along roads and right of ways shall be placed in a manner that will not endanger or restrict pedestrian or vehicular traffic.

#### 1.08 OPEN TRENCH

The amount of open trench shall be limited so that no more than 100 feet of open trench in advance of the backfilling operation will remain at the end of the working day. All open trench shall be protected by the Contractor with barriers, warning devices and traffic control devices, which shall be kept in the correct position, properly directed and clearly visible at all times. The barrier, warning

and traffic control devices shall be suitably lighted at all times that vehicular traffic lights are required.

## 1.09 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of water, materials and products, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with water piping work similar to that required for project.
- C. Codes and Standards:
  - 1. Plumbing Code Compliance: Comply with applicable portions of National Standard Plumbing Code pertaining to selection and installation of water system materials and products.
  - 2. Water Purveyor Compliance: Comply with requirements of Purveyor supplying water to project, obtain required permits and inspections.

## PART 2 PRODUCTS

### 2.01 GENERAL REQUIREMENTS FOR PIPE AND PIPE FITTINGS

- A. Provide piping materials and factory fabricated piping products of sizes, types, pressure ratings, and capacities as indicated.
- B. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in potable water systems.
- C. Where more than one type of materials or products are indicated, selection at a minimum shall meet Seminole County's "Water & Sewer Standards" as contained in the Land Development Code.

### 2.02 PIPE FITTINGS AND ACCESSORIES

Provide same material and weight/class as pipes, with joining method as indicated.

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## 2.03 COPPER TUBE

ASTM B 88; Type K, soft-annealed temper; wrought copper solder joint fittings, ANSI B16.22; lead-free soldered joints.

## 2.04 PVC PIPE AND FITTINGS FOR WATER MAIN APPLICATIONS

- A. All Polyvinyl Chloride (PVC) Pipe shall conform to ASTM D1784 and shall be made from virgin resin compounds. Pipe 4-inches through 12-inches shall be AWWA C900, DR 18, pressure class 150, and meet all the requirements of the AWWA C900 standard, latest edition. Pipe 14-inches and greater shall be AWWA C905 with a dimension ratio of DR-18 and pressure rated at 235 psi, and shall meet all of the requirements of the AWWA C905 standard, latest edition. All PVC pipe 4-inches and greater shall have push-on joints using elastomeric gaskets conforming to the requirements of ASTM F477. Source Manufacturers for PVC pipe: Certainteed, Cantex, Northstar, Johns-Manville, IPEX, H&W and HEP.
- B. All PVC pipe must bear the NSF logo for potable water use
- C. Fittings shall be push-on, mechanical joint, or flanged ductile iron fittings conforming to ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53 with cement mortar lining and asphaltic seal coat. Gaskets for push-on or mechanical joints shall be vulcanized styrene butadiene rubber. Tee-bolts and nuts for mechanical joints shall be high strength low-alloy steel having the characteristics listed in Table 6 of AWWA C111. Source manufacturers for pipe and fittings shall be: American, McWane, Star Pipe Products and U.S. Pipe
- D. Fittings for PVC pipe 4-inches and larger shall be mechanical joint ductile iron fittings complying with ANSI/AWWA C110/A21.10, or ANSI/AWWA C153/A21.53. All fittings shall be cement mortar lined with an asphaltic seal coat and comply with C104/A21.4 standard; or all fittings, under this section, shall be supplied with a fusion applied epoxy coating, both inside and outside for total protection. The epoxy coating system used shall be suited for potable water contact and protection in wastewater applications for sewer gases. The epoxy coating system must have NSF 61 certification and be recognized and certified by the manufacturer as approved for use in both potable water and wastewater application with total protection. The epoxy coating shall meet or exceed ANSI/AWWA C-550 and C116/A21.116 requirements. Nominal coating and lining thickness shall be 6 to 8 mils dry film thickness. The coating and lining system shall be applied for secure adhesion and shall have a smooth surface. Fitting gaskets shall be vulcanized styrene butadiene rubber.

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Tee-bolts and nuts shall be high strength, low-alloy steel having the characteristics listed in Table 6 of AWWA C111.

- E. The pipe restraint shall be Restrained Joints provided by restraining sufficient length of pipe as shown on the drawings. Mechanical restraint devices for PVC pipe shall meet the following requirements:
1. Push-On Pipe Joints: Restraining devices shall consist of two split rings, restraining rods, and related hardware. The split rings shall be manufactured of high strength ductile iron meeting the requirements of ASTM A536, Grade 65-45-12, or structural steel meeting the requirements of ASTM A36. Restraining rods, bolts, and connecting hardware shall be in accordance with ANSI/AWWA C111/A21.11. The devices shall be rated for a working pressure of at least 200 psi with a safety factor of two and shall comply with the requirements of UNI-B-13-92. The devices shall be Series 1390 as manufactured by Uni-Flange, Meg-a-Lug, Romac Industries 600 Series, Star Pipe Products, One Bolt or an approved equal. After installation, restraining assemblies which are not ductile iron shall be painted in accordance with Paragraph 2.02, B., 11., Section 09900, and shall be wrapped with polyethylene which meets the requirements of, and is installed in accordance with AWWA C105.
  2. Mechanical Joint Fittings: Where PVC pipe connects to mechanical joint ductile iron fittings and joints are to be restrained, restraining device shall consist of a split ring, restraining rods, and related hardware. The split ring shall be constructed of high strength ductile iron meeting the requirements of ASTM A536, Grade 65-45-12, or structural steel meeting the requirements of ASTM A36. Restraining rods, bolts, and connecting hardware shall be in accordance with ANSI/AWWA C111/A21.11. The devices shall be rated for a working pressure of at least 200 psi with a factor of safety of two and shall comply with the requirements of Uni-Flange B-13-92. The devices shall be Series 1390 as manufactured by Uni-Flange, Meg-a-Lug, Romac Industries 600 Series, Star Pipe Products, One Bolt or an approved equal. After installation, restraining assemblies which are not ductile iron shall be painted in accordance with Paragraph 2.02, B., 11., Section 00990, and shall be wrapped with polyethylene meeting the requirements of, and is installed in accordance with AWWA C105.
- F. It shall be the responsibility of the Contractor to restrain any existing pipe systems that are connected to newly constructed pipe system. Restraint shall be installed in accordance with the applicable restrained joint table detailed on the Drawings.

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2.05 POLYVINYL CHLORIDE (PVC) PIPE (MAINS 3" AND SMALLER) - N/A

2.11 POLYETHYLENE PIPE AND FITTINGS (4 INCH AND LARGER)

- A. Polyethylene pipe and fittings shall be in accordance with AWWA C906, standard code designation PE 3408, DR 11, PC 160. The manufacturer shall certify that the materials used to manufacture pipe and fittings meet these requirements. The pipe sizing shall be in accordance with Ductile Iron Sizing System (DIOD).
- B. Polyethylene Flange Adapters shall be made with sufficient through-bore length to be clamped in a heat fusion joining machine without the use of sub-end holder. The sealing surface of the flange adapter shall be machined with a series of small v-shaped grooves to provide gastketless sealing, or to restrain the gasket against blow-out.
- C. Back-Up Rings and Flange Bolts. Flange adapters shall be fitted with lap joint flanges pressure rated equal to or greater than the mating pipe. The lap joint flange bore shall be chamfered or radiused to provide clearance to the flange adapter radius. Flange bolts and nuts shall be grade 2 or higher.
- D. All polyethylene pipe shall be black, and shall contain a continuous colored stripe, 2 inches wide, at three separate locations along the length of the pipe. Stripe color shall be:
  - 1. Potable Water Mains - blue
  - 2. Reclaimed Water Mains - purple

2.07 DUCTILE IRON PIPE AND FITTINGS OF WATER MAIN APPLICATIONS - N/A

2.08 MISCELLANEOUS FITTINGS AND ACCESSORIES:

- A. Flanged Adapters shall be Cast iron, ASTM A126, Class B, Flanges to match ANSI B 16.1, 125 lb. flanges.
- B. Wall Sleeves:
  - 1. Cast iron or hot dip galvanized steel with exterior ring cast at center of sleeve.
  - 2. Mechanical Joint: Acceptable Figure No. F-1436, Clow Corporation, or equal.
- C. Penetration Seals: Where pipes pass through walls and sleeves, pipe-to-wall penetration closures shall be furnished:

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1. Interlocking synthetic rubber links assemblies with austenitic stainless steel bolts and nuts.
  2. Glass fiber reinforced plastic pressure plates under each bolt head and nut.
  3. For Piping 10" and Larger: Links shall have reinforced centering blocks in the lower 90o quadrant or assembly.
  4. Acceptable: Link-Seal by Thunderline Corporation, Wayne, Michigan, or equal.
- D. Threaded Pipe Nipples: Short lengths unless otherwise required. Close lengths shall not be used except with special permission of the Engineer. Nipple stock shall be of same material used in connecting pipe and shall conform with material specifications.
- E. D.I.P. Couplings: Couplings shall be full-circle, Rockwell, Dresser. Unless otherwise indicated, couplings 2 inches and smaller shall be malleable iron and couplings over 2 inches shall be cast iron.
- F. PVC Adapters and Flexible Couplings: Prefabricated polyvinyl joint sealer adapters and couplers are manufactured by Fernco or equal, with stainless steel bands and adjusting screws.

## 2.09 SERVICE PIPE, STOPS, FITTINGS AND SERVICE SADDLES

### A. Service Pipe

1. All service lines shall be 1 1/2" or 2" polyethylene tubing, and shall be high-density polyethylene pipe, 3408 CTS, only. All service tubing shall comply or exceed the applicable standards of ASTM D1248, ASTM D3350, ASTM D2239, ASTM D2737, NSF-14 and AWWA C901. The cell classification for tubing shall be 345444E (exterior) and 345444D (interior). All potable water line tubing shall be blue in color with a clear virgin high-density polyethylene center, which the manufacturer shall furnish a certificate of purity. The tubing shall have UV protection and shall not be affected by direct sun light for up to a minimum of four years. Tubing shall have a minimum pressure rating of 200 psi with a SDR of 9 (CTS). Size range for potable water tubing shall be 1 1/2 inch to 2 inch and shall come with a lifetime warranty; Potable water tubing shall be ENDOT Endro Pure or approved Equal.
2. All reclaimed water tubing shall be high-density polyethylene pipe, 3408 CTS, only. All reclaimed service tubing shall comply or exceed the applicable standards of ASTM D1248, ASTM D3350, ASTM D2239, NSF-14, ASTM D2737, and AWWA C901. The cell

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classification for tubing shall be 345444E (exterior) and 345444D (interior). Tubing shall have a minimum pressure rating of 200 psi and SDR of 9 (CTS). Reclaimed tubing shall be pantone 522C in color with a clear virgin high-density polyethylene center, which the manufacturer shall furnish a certificate of purity, and shall come with a lifetime warranty. The tubing shall have UV protection and shall not be affected by direct sun light for up to a minimum of four years. All reclaimed tubing shall be ENDOT or approved equal.

**B. Stops**

1. Corporation stops shall be 1" or 1 1/2" brass, equipped with connections compatible with the polyethylene tubing and threaded in accordance with specifications in AWWA C800. Curb stops shall be sized to match the meter size and conform to the specifications in AWWA C800.
2. Water services that are two inches (2") in diameter shall be connected to the water main by a tapping saddle and valve w/valve box. A close brass nipple shall be used between the saddle and valves.

**C. Fittings shall be brass, cast and machined in accordance with specifications in AWWA C800 and AWWA C901, with compatible polyethylene tubing connections.**

**D. Service Saddles**

1. A service saddle shall be used for all service line taps. Service saddles shall be single or double strapped epoxy coated with stainless steel bands and bolts. Ford FC-101, F202 or approved equal.
2. Service saddles for PVC pipe shall have the double strap sized exactly to the pipe outside diameter.
3. Sealing gaskets shall be BUNA N rubber and straps shall be corrosion resistant alloy steel. The County will require a stainless steel strap and fusion epoxy or nylon coated ductile iron body with stainless steel hardware in areas designated as corrosive.

**2.10 HDPE ELECTROFUSION BONDED SERVICE TAPS**

Comply with all requirements of NSF-14 and shall have ISO 9001 certification. All taps shall be rated for the same working pressure as the water main pipe being used. Electrofusion tapping tee and couplings shall provide 360 degree fusion of the pipe for a monolithic connection, and shall be as manufactured by

Central Plastics. Installation shall be in strict compliance with manufacturer's requirements.

### PART 3 - SYSTEM INSTALLATION

#### 3.01 EXCAVATION:

- A. The Contractor shall perform all excavation of every description and of whatever substances encountered to the depths indicated on the drawings or as necessary. This shall include all necessary clearing and grubbing of any foreign substance encountered within the structure or trench area. Excavated material suitable for backfill shall be piled in an orderly manner at a sufficient distance from the trench to prevent slides or cave-ins. All applicable provisions of Section 02200, Earthwork shall be followed.
- B. Protection of Existing Facilities and Utilities: All existing improvements such as pavements, conduit, poles, pipes and other structures, shall be carefully supported and fully protected from injury and, in case of damage, they shall be restored by the Contractor without compensation. Known existing utilities and other underground obstructions are shown on the plans, but the accuracy of the locations and depths is not guaranteed. The Contractor shall contact the utility prior to construction and arrange for the necessary assistance in locating and protecting the existing utilities. The Contractor shall be responsible for damages to these existing utilities and shall, in case they are damaged, restore them to their original condition.
- C. Trench Excavation: The minimum width of the trench shall be equal to the outside diameter of the pipe at the joint plus 8 in. each side of pipe for unsheeted or sheeted trench, with the maximum width of trench, measured at the top of the pipe, not to exceed the outside pipe diameter, plus 24 in., unless otherwise shown on the drawings. Trench walls shall be maintained vertical from the bottom of the trench to a line measured at the top of the pipe. From the top of the pipe to the surface the trench walls shall be as vertical as possible under soil conditions.
- D. No more than 100 linear feet of trench shall be open in advance of the completed pipe laying operation without prior approval of the Engineer. Pipe trenches across roadways and driveways shall be backfilled as soon as pipe is installed. Where, in the opinion of the Engineer, adequate detour facilities are not available, no trench shall be left open across a roadway or commercial property driveway where adequate detour routes are not available for a period in excess of 30 minutes, or as directed by the governing authority. No trench shall be left open across any roadway or driveway for more than 24 hours.

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- E. Shoring, Sheet piling and Bracing: The Contractor shall do all shoring, sheet piling and bracing or provide other approved facilities required to perform and protect the excavation and as necessary for the safety of the public, the employees, and the preservation of existing roads, structures and other utilities. The top of such sheet piling left in place shall be cut off at a minimum elevation of 2.5 ft below finished grade.
- F. Pavement Removal: The Contractor shall remove pavements as part of the trench excavation. The material from permanent pavement removal shall be carefully separated from trench excavation material and disposed of by the Contractor as approved by the Engineer.
- G. Boulder Removal: All rocks, stones, boulders or concrete, having any dimension larger than permitted to be used for backfill in the paragraph entitled "Backfilling" of these specifications, shall be removed from the site and disposed of by the Contractor.
- H. Disposal of Excess Materials: The Contractor shall dispose of the excavated materials not required or suitable for backfill. All surplus excavated material which is suitable for fill shall become property of the Contractor, and shall be disposed of by the Contractor at his expense.
- I. Unstable Soil Conditions and Overdepth Excavation: Where unstable soil conditions are encountered, the excavation shall be increased as directed by the Engineer. The bottom of the excavation shall be brought up to the proper excavation elevation utilizing suitable and properly compacted backfill material.

### 3.02 INSTALLATION OF MAINS:

- A. Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturer's instructions and with the applicable AWWA or ASTM Standards. If a conflict exists between the manufacturer's instructions and the AWWA or ASTM Standards, the manufacturer's instructions shall govern.
- B. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment. All piping shall be placed in a dry trench, unless wet trench installation is approved by the Engineer.

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- C. Depth of Cover: Unless otherwise shown on the drawings, or otherwise authorized by the Engineer, the pipe shall have a minimum cover of 36 in.
- D. Connections to Existing Mains: The Contractor shall make connections to existing mains as shown on the drawings. Connections to pressurized mains shall be made only after flushing has been completed and under the system Owner's immediate supervision.

### 3.03 SEPARATION OF NON-POTABLE AND POTABLE WATER LINES

- A. The horizontal separation between water mains and sanitary sewer, storm sewer, wastewater force mains, stormwater force mains, reclaimed water mains and onsite sewage treatment and disposal systems shall be in accordance with the following:
  - 1. The outside of water mains shall be a minimum of three feet from the outside of any existing or proposed storm sewer, stormwater force main, vacuum type sanitary sewer and reclaimed water main.
  - 2. The outside of water mains shall be a minimum of six feet from the outside of any existing or proposed gravity sanitary sewer and wastewater force main. The minimum horizontal separation distance between the outside of water mains and the outside of gravity sanitary sewers can be reduced to three feet where the bottom of the water main is at least six inches above the top of the sew.
  - 3. The outside of water mains shall be a minimum of ten feet from all parts of any existing or proposed onsite sewage treatment and disposal system such as septic tanks, drainfields, and grease traps. Onsite sewage treatment and disposal systems do not include package sewage treatment facilities and public wastewater treatment facilities.
- B. The vertical separation between water mains and sanitary and storm sewer, wastewater or stormwater force mains, and reclaimed water mains shall be in accordance with the following:
  - 1. Wherever possible, water mains shall cross over existing or proposed gravity sanitary sewer, vacuum type sanitary sewer, and storm sewer, so the outside of the water main is at least six inches above the outside of the sewer. Where it is not possible for the water main to cross over existing or proposed gravity sanitary sewer, vacuum type sanitary sewer, and storm sewer, then the water main can cross under these types of pipeline systems provided the outside of the water main is at least 12 inches below

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the outside of the pipeline. At the crossing, the proposed pipe joints shall be arranged so that all water main joints are at least three feet from vacuum type sanitary sewer or storm sewer joints, and at least six feet from gravity sanitary sewer joints.

2. Wherever possible, water mains shall cross over existing or proposed reclaimed water mains, wastewater force mains and stormwater force mains. Whether the water main crosses over or under these types of pipeline systems, the outside of the water main shall be at least 12 inches from the outside of the existing or proposed reclaimed water main, wastewater force main and stormwater force main. At the crossing, the proposed pipe joints shall be arranged so that all water main joints are at least three feet from reclaimed water main joints and stormwater force main joints, and at least six feet from the joints of wastewater force mains.

C. No water main shall pass through or come in contact with any part of a sanitary sewer manhole.

D. The following are acceptable alternative construction variances where it is not possible to meet the separation requirements, and are only to be implemented upon receipt of expressed written consent from the Engineer. Implementation of these measures without the expressed written consent of the Engineer could result in the requirement that the installed unapproved measures be removed and replaced at no cost.

1. Where a water main is less than the required minimum horizontal distance from another pipeline and or where a water main crosses another pipeline and joints in the water main are less than the minimum required distance between the joints in the other pipeline:
  - a. Use of pressure rated pipe conforming to AWWA standards for a gravity or vacuum type pipeline.
  - b. Use of welded, fused, or otherwise restrained joints for either pipeline.
  - c. Use of watertight casing pipe or concrete encasement at least four inches thick for either pipe.
2. Where a water main is less than three feet horizontally from another pipeline and or where a water main crosses another pipeline less than the required minimum separation:
  - a. Use of pipe or casing pipe, having high impact strength (at least equal to 0.25 inch thick ductile iron pipe), or concrete encasement at least four inches thick for the water main and for the other pipeline if the other pipeline conveys wastewater or reclaimed water.

### 3.04 BACKFILLING

A. Material: Shall be excavated material, essentially free of organic material, asphaltic concrete, clay, concrete, boulders and other deleterious material.

1. Bedding and Pipe Embedment: The material in the bedding, around the pipe and to a depth of 1 foot over the pipe shall be sand or a mixture of sand, shell or crushed rock properly graded and mixed so that fine grain material from the side walls of the trench or backfill above the embedment will not migrate into the backfill material. The backfill shall meet the following limitations:
  - a. Ductile Pipe - All material shall pass through a 3/4 inch square opening laboratory sieve.
  - b. Plastic Pipe - All material shall pass through a 1/2 inch square opening laboratory sieve for pressure water mains.
2. Above Pipe Embedment: The material shall be sand or a mixture of sandy material and rock, stone and shell. Rock, stone and shell shall pass through a 3-1/2 inch ring.
3. Additional Fill: If sufficient suitable backfill material is not available from the excavation, additional fill meeting the above requirements shall be provided by the Contractor at no additional expense to the Owner.

B. Placing and Compaction of Pressure Mains:

1. Under Pavement: Where the excavation is made through existing or proposed pavements, including shoulders, curbs, driveways or sidewalks, or where such structures are penetrated by wellpoints, the entire backfill to the subgrade of the pavement or structures shall be made with predominantly sandy material free from rock, stones or organic matter, except that rocks passing a 3-1/2 in. ring will be permitted in the backfill between the elevation one foot above the top of the pipe and the bottom of the pavement subgrade.
2. The entire backfill material, including the material placed around and one foot above the pipe, shall be compacted to a density of not less than 100% of the maximum density, as determined by AASHTO T-99. Particular care shall be taken to insure that the backfill at the haunch is free from voids and is properly compacted. Compaction by flooding or puddling will be permitted only by written authorization from the Engineer.
3. Roads, walks and driveways consisting of broken stone, gravel, marl, shell, shellrock, or a conglomerate of such materials are not considered as being permanent pavement.

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4. In Areas Not Under Permanent Pavement: Within right-of-ways or other areas where permanent pavement does not exist or is not proposed, including roads, walks and driveways consisting of broken stone, gravel, marl, shell, shellrock or conglomerate, the entire backfill to the subgrade of the pavement or structures shall be made with predominantly sandy material free from rock, stones or organic matter, except that rocks having a dimension of 6 in. will be permitted in the backfill between the elevation 1 ft. above the top of the pipe and 1 ft. below the surface. Particular care shall be taken to insure that the backfill at the haunch is free from voids and is properly compacted. The bedding and embedment shall be compacted to a density of not less than 100 percent of maximum as determined by AASHTO T-99. The backfill material above 1 ft. over the pipe shall be compacted to a density of not less than 98 percent of the maximum density, as determined by AASHTO T-99. Compaction by flooding or puddling will be permitted only by written authorization from the Engineer.
5. Miscellaneous: Backfilling around meter boxes, valve boxes and other structures shall be accomplished in the same manner as the connected pipe. Extreme care shall be used in backfilling wellpoint holes should be plugged with a concrete slurry, such plugging to be at the expense of the Contractor.
6. Compaction Tests: The Engineer may at any time instruct the Contractor to partially excavate a previously backfilled trench or temporarily backfilling of a short section of the trench for the purpose of obtaining measurements of the density of the backfill. The testing will be paid for by the Owner. The cost of the partial excavation and restoration of the backfill will be paid by the Contractor. Density tests shall be taken along the pipe. (Maximum distance between tests shall be 300 lineal feet. Tests shall begin 12" from top of pipe and shall be tested every 24" in depth for subsequent lifts).

### 3.05 EXPOSED PIPING

#### A. General:

1. Present neat and orderly appearance with completed installation.
2. Install parallel, or at right angles, to all walls, or other building surfaces, where possible, unless indicated otherwise.
3. Space for easy removal and maintenance.

#### B. Vertical Piping shall be secured at sufficiently close intervals to keep pipe in alignment, and to support weight of pipe and its contents.

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- C. Horizontal Piping shall be supported at sufficiently close intervals to prevent sagging, and provide thrust restraint. Install supports at ends of runs or branches and at each change of direction or alignment.
- D. Wall Penetrations:
  - 1. Install wall sleeves or pipes in cast-in-place concrete walls prior to placing concrete.
  - 2. Miscellaneous Small Piping (in lieu of wall sleeves): Provide length of galvanized steel pipe or galvanized heavy wall conduit equal to wall thickness.
  - 3. Install specified penetration seals to provide a watertight, vermin-proof joint.
- E. See Painting Section 09900 for requirements.

### 3.06 BUTT HEAT FUSION JOINTS FOR PE (POLYETHYLENE) PIPE

- A. Equipment for butt heat fusion joints shall be as recommended by the pipe manufacturer.
- B. Carefully face pipe ends and check for squareness prior to heating ends. Apply clamps as necessary to match outside pipe end diameters. Follow the pipe manufacturer's recommendations concerning temperature, melt time, heat soak times, and joining time. Maintain joining pressure until pipe has cooled to a temperature of 150-160 degrees F. Handle pipe carefully until joint has returned to ambient temperature. Inspect all joints carefully for any irregularities; cut out and re-do all defective joints.

### 3.07 SOCKET HEAT FUSION FOR PE (POLYETHYLENE) PIPE

- A. Equipment for socket heat fusion shall be as recommended by the pipe manufacturer.
- B. Bevel the pipe end and remove burrs before making joint. Clean heating tool thoroughly and, if tool is not Teflon coated, spray with a silicone release solution. Heat tool to the temperature recommended by the pipe manufacturer. Place both pipe and fitting on the tool until the correct degree of melt is achieved. Remove pipe and fitting from the tool simultaneously and insert the pipe squarely into the fitting; do not turn pipe or fitting during insertion. Avoid any movement of the joint for 10 to 15 seconds. Handle pipe carefully until the joint has returned to ambient temperature.

### 3.08 POLYETHYLENE PIPE JOINING (4 INCH AND LARGER PIPE)

- A. Joints between plain end pipes and fittings shall be made by butt fusion, and joints between the main and saddle branch fittings shall be made using saddle fusion using only procedures that are recommended by the pipe and fitting manufacturer. The Contractor shall ensure that persons making heat fusion joints have received training in the manufacturer's recommended procedure. The Contractor shall maintain records of trained personnel, and shall certify that training was received not more than 12 months before commencing construction. External and internal beads shall not be removed.
- B. Upon request, the manufacturer shall provide training in the manufacturer's recommended butt fusion and saddle fusion procedures to the Contractor's installation personnel, and to inspectors representing the Owner.
- C. Mechanical joints are only allowed where joining polyethylene pipe to another material. Mechanical couplings shall be fully pressure rated and fully thrust restrained such that when installed in accordance with manufacturer's recommendations, a longitudinal load applied to the mechanical coupling will cause the pipe to yield before the mechanical coupling disjoins. External joint restraints shall not be used in lieu of fully restrained mechanical couplings. Mechanical joints and flange connections shall be installed in accordance with the manufacturer's recommended procedure. Flange faces shall be centered and aligned to each other before assembling and tightening bolts. In no case shall the flange bolts be used to draw the flanges into alignment. Bolt threads shall be lubricated, and flat washers shall be fitted under the flange nuts. Bolts shall be evenly tightened according to the tightening pattern and torque step recommendations of the manufacturer. At least 1 hour after initial assembly, flange connections shall be re-tightened following the tightening pattern and torque step recommendations of the manufacturer. The final tightening torque shall be 100 ft-lbs or less as recommended by the manufacturer.
- D. Branch connections to the main shall be made with saddle fittings or tees. Polyethylene saddle fittings shall be saddled fused to the main pipe per Heat Fusion Joining.

### 3.09 CULVERT REPAIR

- A. Culverts, catch basins, swales and other drainage structures that are damaged during construction shall be replaced with materials and

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structures equal and similar to those removed or damaged, unless indicated otherwise. Manhole covers and gratings shall be set at the original elevations unless otherwise directed. In addition, it shall be the responsibility of the Contractor to maintain existing drainage patterns and stormwater conveyance systems throughout the duration of the project.

- B. The Contractor shall take precautions against the entry of excavated and other loose material resulting from his operations from entering catch basins, culverts and other drainage structures in the vicinity of his operations. He shall maintain the cleanliness of these drainage structures in a condition equal to that prior to the commencement of his operations during the construction. The Contractor shall be responsible for all damage to persons, roads, buildings, vehicles and other property resulting from the failure of the Contractor to maintain these drainage structures. The cost of repair of any culverts shall be borne by the Contractor.

### 3.10 RESTORATION OF DAMAGED SURFACES, STRUCTURES AND PROPERTY

Where pavement, trees, shrubbery, fences or other property and surface structures not designated as pay items, have been damaged, removed or disturbed by the Contractor whether deliberately or through failure to carry out the requirements of the contract documents, state laws, municipal ordinances or the specific direction of the Engineer, or through failure to employ usual and reasonable safeguards, such property and surface structures shall be replaced or repaired at the expense of the Contractor to a condition equal to that before Work began within a time frame approved by the Engineer.

### 3.11 PROTECTION

At the end of each workday the mains under construction shall be plugged to prevent the entry of small animals or rodents. Temporary plugs shall be provided by the Contractor for this purpose.

### 3.12 CLEANUP

The Contractor shall maintain the site of the Work in a neat condition. The Contractor shall remove all excess materials, excess excavated materials and all debris resulting from his operations within a time frame approved by the Engineer.

### 3.13 PRESSURE TESTING, FLUSHING, AND DISINFECTION

See Section 02675

END OF SECTION

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## SECTION 02640 - VALVES, FIRE HYDRANTS, AND ACCESSORIES

### PART 1 - GENERAL

1.01 DESCRIPTION OF WORK: The CONTRACTOR shall furnish and install all valving equipment as shown on the drawings and as specified.

1.02 APPLICABLE CODES, STANDARDS AND SPECIFICATIONS: The Work under this Contract shall be in strict accordance with the following codes and standards:

- A. Local, COUNTY and Municipal Codes
- B. American Society for Testing and Materials (ASTM)
- C. American National Standards Institute (ANSI)
- D. American Water Works Association Standards (AWWA)
- E. Florida Department of Transportation Specifications (FDOT)
- F. Florida Department of Environmental Protection (FDEP)
- G. Federal Specifications
- H. United States Department of Commerce Commercial Standards (CS)
- I. All Local Government Rules and Regulations

### 1.03 MATERIALS AND EQUIPMENT

- A. Unless otherwise specified or shown on the Drawings, materials and equipment shall be the standard product of a manufacturer and shall comply with the Contract Documents and applicable standards for such materials or equipment.
- B. Prior to the start of the Work, the CONTRACTOR shall submit a list of the manufacturers of all equipment and materials to be incorporated in the work that conform to a standard, code or as specified.
- C. Provide valves meeting the following requirements: (1) Connections fitting the joints specified, indicated and/or required for the piping; (2) Rated for not less than 150 psi cold water, nonshock service, unless specified otherwise

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herein; and (3) Turn to the left to open. Provide valve boxes with all buried valves. Submit complete valve schedule showing type, use and location, with valve shop drawings, for approval before installation.

## PART 2 - PRODUCTS

### 2.01 VALVE OPERATORS

- A. General: The rated torque capability of each operator, shall be sufficient to seat, unseat and rigidly hold in any intermediate position the valve disc or plug it controls under the test conditions specified. All valves shall be equipped with adjustable mechanical stop-limiting devices to prevent over-travel of the valve disc or plug in the open and closed positions. Operator housings, supports and connections to the valve shall be designed with a minimum safety factor of five based on the ultimate strength, or based on three on the yield strength of materials used. The rated torque capability of each cylinder portion of a cylinder operator shall be sufficient to seat, unseat and rigidly hold in any intermediate position the valve disc or plug it controls under the operating conditions specified. Operators to be buried shall be watertight. The position of the operator shall be as shown on the shop drawings. The piece mark of the valves, the location, the size, the type of operator, the maximum working head, and the closing time shall be tabulated on the shop drawings.
- B. Gearing
  - 1. All gear operators or traveling-nut operators shall be self-locking and designed to transmit twice the required operator torque without damage to the faces of the gear teeth or the contact faces of the screw or nut. Upon request, the manufacturer shall furnish the purchaser with certified copies of reports describing the procedures and results of the tests for each model and torque rating of operator to be furnished.
  - 2. Operators composed of worm gearing shall be totally enclosed in a lubricant gear case and shall have worm gears of bronze and worms of hardened steel that operate.
  - 3. Operators of the traveling-nut type shall have threaded reach rods of steel and shall have a bronze or ductile iron nut with internal threads. Operators shall be enclosed.
- C. Manual Operators: Manual operator shall have all gearing totally enclosed. Operators shall be designed to produce the specified torque with a maximum pull of 80 lbs on handwheel or chainwheel operators and a maximum input of

150 ft-lb on operating nuts. Stop-limiting devices shall be provided in the operators for the open and closed position. All operator components between the input and these stops shall be designed to withstand, without damage, a pull of 200 lbs for handwheel or chainwheel operators and an input torque of 300 ft-lb for operating nuts. An arrow and the word "open" or "close" shall be cast on the handwheel to indicate the direction to turn said handwheel. All operating nuts shall be designed so that counter clockwise movement of the handwheel will open the valve and clockwise movement of the handwheel will close the valve.

2.02 PLUG VALVES - N/A

2.03 SWING CHECK VALVES - N/A

2.04 HOSE BIBBS

- A. Hose bibbs shall be Crane No. 58 of the size shown on the drawings.

2.05 BALL VALVES

- A. Water Service: Ball valves shall be designed for a water working pressure of not less than 150 psi, shall be constructed of PVC and when in the fully-open position, shall have a port diameter not less than Schedule 80 PVC pipe of the same nominal diameter. Valves shall be designed with true union ends to permit removal of the valve from the line and with end connectors designed for solvent welding to the pipe. Acceptable: ASAHI Duo-Bloc, Chemitrol or equal.

2.06 GATE VALVES

- A. The resilient-seated gate valve shall consist of an encapsulated disc with elastomer seat which, in the closed position effects a seal upon a cast iron body resulting in a bubble tight seal across this disc at a full differential of 200 psi. This shall be accomplished by means of a corrosion resistant threaded bronze stem, acting through a bronze stem nut, fixed into the disc in such a way as to force the disc seat into the body, effecting a seal when the stem is torqued in the desired direction.
- B. Each valve shall be tested from both directions, by the manufacturer, for bubble tight, 200 psi differential sealing ability. Each valve shall also be tested in the "disc up" position at 400 psi resulting in a full shell test. There shall be no leakage at any of the valve's joints or connections.

- C. All internal parts shall be accessible without removing the main body from the pressure line.
- D. All cast iron internal surfaces of the body shall be coated completely with a corrosion resistant coating. For potable water applications, coating shall comply with requirements of NSF 61 and be accepted by FDEP.
- E. This resilient-seated gate valve shall conform to AWWA Standard C509 latest revision.
- F. The internal diameter of the water passageway shall be at least as large as the connecting pipe inside diameter.
- G. All valves' interior and exterior surfaces shall be coated with a high performance, one-part, heat-curable, thermosetting epoxy coating which provides superior corrosion resistance protection for metal parts. For potable water applications, coating shall comply with requirements of NSF 61 and be accepted by FDEP.
- H. Actuator extensions shall be provided for all valves greater than four (4) feet in depth below finished grade. These extensions shall be fabricated as one piece.

#### 2.07 BUTTERFLY VALVES - N/A

#### 2.08 AIR RELEASE/VACUUM RELEASE VALVES

- A. The valve body shall be of stainless steel SAE 316 or reinforced nylon; the floats, float guide and stem shall be of stainless steel SAE 316. The valve shall be rated for 150 psi working pressure. Valve shall have standard two (2) inch threaded inlet and outlet ports unless otherwise shown on the plans. A connection shall be provided for back-flushing the valve. All connection and back-flushing valves shall be operated by a stainless steel or bronze handle. Air release and vacuum valves shall be one of the following or an approved equal:

- 1. A.R.I. USA, Inc. D-025 "SAAR"

#### 2.09 TAPPING SLEEVES AND SADDLES

- A. Test Connection: All tapping sleeves shall be supplied with a National Pipe Thread test connection and a plug.

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- B. Steel Tapping Sleeves: Sleeves shall be fabricated of minimum 3/8" carbon steel meeting ASTM A285 Grade C. Outlet 12" and above 150 psi flange shall meet AWWA C-207, Class "D" ANSI 175 psi 4" to 12" drilling and be properly recessed for the tapping valve. Bolts and nuts shall be 316 stainless steel high strength low alloy steel to AWWA C111 (ANSI A21.11). Gasket shall be vulcanized natural or synthetic rubber. Sleeve shall have manufacturer-applied, fusion-bonded epoxy coating, minimum 12 mil thickness.
- C. Stainless Steel Tapping Sleeves: Sleeve shell and lugs shall be 304 stainless steel. Bolts, washers, and nuts shall be 5/8" 304 stainless steel, NC thread and heavy hex nuts. Bolt threads shall be teflon coated. Washers shall be plastic lubricating. Gaskets shall be virgin SER compounded for water and sewer service and shall meet ASTM D2000 MAA 410Z-90 (Z=45 Durometer). Flange shall be ductile iron or stainless steel and shall meet ASTM 536-80, Grade 65-45-12.
- D. Mechanical Joint Tapping Sleeves: Mechanical joint tapping sleeves are to be used for taps to asbestos cement pipe and size on size tap. Sleeves shall be cast of gray iron or ductile iron and have an outlet flange with the dimensions of the Class 125 flanges shown in ANSI B16.1 properly recessed for tapping valve. Glands shall be gray iron or ductile iron. Gaskets shall be vulcanized natural or synthetic rubber. Bolts and nuts shall be 316 stainless steel and comply with ANSI/AWWA C111/A21.11. Sleeves shall be capable of withstanding a 200 psi working pressure.
- E. Service Saddles: Service Saddles are to be used for 2" and smaller taps. Saddles are to be double strap and all parts are to be corrosion resistant.

Approved Manufacturers:

- |             |           |
|-------------|-----------|
| 1. Rockwell | 1. 213    |
| 2. Ford     | 2. F202   |
| 3. JCM      | 3. 402    |
| 4. Mueller  | 4. H10520 |
| 5. Baker    | 5. 4181   |

## 2.10 FIRE HYDRANTS

- A. Characteristics: Cast iron body fire hydrants, compression type, opening against pressure and closing with pressure, base valve design, 150 psi working pressure, with 1/4-inch gage tapping and bronze plug in standpipe.

1. Size: Min. 5¼ inch valve opening and min. 6 inch inlet connection (valve).
  2. Direction to open hydrant: Left.
  3. Size and shape of operating and cap nuts: Pentagon 1½ inch point to flat.
  4. Hose Nozzles: Two 2½ inch Nation Standard Thread, cap and chain.
  5. Pumper Nozzles: One 4½ inch National Standard Thread, cap and chain.
  6. Depth of Trench: 5'-0".
  7. Connection to Main: 6-inch mechanical joint.
  8. Hydrant Extensions (must be of same manufacturer).
- B. Hydrants shall conform to AWWA Standard C502 latest revision and as specified herein.
- C. Hydrants shall be of the compression type, closing with line pressure.
- D. Hydrant shall be of the traffic model breakaway type.
- E. Hydrant cap and stuffing box shall be of a unitized, one piece design creating a water tight cavity without the use of gaskets. The combination of 3 O-rings to a crimped brass ferrule around the stem shall seal the cavity from contact with water. An alemite fitting shall be supplied for periodic lubrication of the operating threads with grease.
- F. Operating nut shall be of one piece bronze construction.
- G. A dirt shield shall be provided to protect the operating mechanism from grit buildup and corrosion due to moisture.
- H. A thrust washer shall be supplied between the operating nut and stem lock nut to facilitate operation.
- I. Nozzles shall be of the tamper resistant, ¼ turn type with O-ring seals and stainless steel retaining screws.
- J. An O-ring shall be provided to seal between the upper and lower barrels.
- K. The main valve shall be of synthetic rubber reinforced with steel.
- L. The seat shall be of a bronze ring threaded to a bronze insert in the hydrant shoe, with O-rings to seal the drainway and barrel from leakage of water in the shoe.

- M. Hydrant drain valve shall momentarily force flush with each operation. Drainway shall be of bronze. Drain valve facing shall be of synthetic rubber with a stainless steel retaining pin.
- N. Hydrants shall be Guardian as manufactured by ITT Kennedy Valve or approved equal.
- O. All fire hydrant interior surfaces shall be coated with a high performance, one-part, heat-curable, thermosetting epoxy coating which provides superior corrosion resistance protection for metal parts.
- P. Source Manufacturers:
  - 1. Mueller Part No. Centurion
  - 2. American Part No. B84B.6"
  - 3. M&H Part No. 929
  - 4. Clow Part No. Medallion
  - 5. Kennedy Part No. K.81A

## 2.11 ACCESSORIES

- A. VALVE BOXES: Valve boxes shall be cast iron, adjustable, Tyler, James B. Clow and Sons, Inc., F4700, Trinity Valley, Southern star, or equal, with cast iron drop cover. All buried valves shall be equipped with a valve box. Covers shall be marked "WATER" for potable water systems, "REUSE" for reclaimed water systems, and "SEWER" for wastewater transmission systems.
- B. Valve Pits: Provide valve pits as indicated, constructed of poured in place or precast concrete. Construct of dimensions indicated with manhole access, ladder, and drain. Provide sleeves for pipe entry and exit, provide waterproof sleeve seals.
- C. Anchorages:
  - 1. Clamps, Straps, and Washers: Steel, ASTM A 506.
  - 2. Rods: Steel, ASTM A 575.
  - 3. Rod Couplings: Malleable iron, ASTM A 197.
  - 4. Bolts: Steel, ASTM A 307.
  - 5. Cast Iron Washers: Gray iron, ASTM A 126.

D. Yard Hydrants:

1. Characteristics: Non-freeze yard hydrants, ¾ in. inlet, ¾ in. hose outlet, bronze casing, cast iron or cast aluminum casing guard, key operated, and tapped drain port in valve housing.
2. Source Manufacturers:
  - a. Josam Mfg. Co.
  - b. Smith (Jay R.) Mfg. Co.
  - c. Tyler Pipe.
  - d. Zurn Industries, Inc.; Hydromechanics Div.

2.12 LINE STOPS

- A. Where indicated on the Drawings, line stops shall be utilized to isolate portions of water mains.
- B. Line stops shall be completed while the water system is pressurized.
- C. Line stops shall consist of a line stop fitting, stopping plug/valve, blind flange for installation after stop is completed, and 1-inch equalization/purge fitting.
- D. Materials:
  1. Line stop fitting - fabricated steel with 12 mil (minimum) epoxy coating.
  2. Hardware and Accessories - 304 Stainless Steel
  3. Blind Flange - Ductile Iron
- E. A concrete encasement shall be poured for pipe support at the point of line stop.
- F. The CONTRACTOR shall be responsible for all additional pipe restraining in the vicinity of the line stop for preventing pipe movement due to any unbalanced forces created by the line stop and subsequent cutting and removal of existing pipe adjacent to any line stop.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. VALVES: Set with stems vertically above the centerline of the pipe, except valves with gear boxes or where indicated or directed otherwise. Keep valves tightly closed during installation and take care to prevent dirt from

damaging seating surfaces. Tighten stuffing box, if provided, and operate valve to see that all parts are in working condition before installation. Set valve box, for buried valve, plumb and place directly over the valve operating nut. Tamp earth fill complete around the valve box for a distance of one foot. Provide valve box extensions where required by depth of cover. If in valve vault, provide support under valve body as recommended by manufacturer or as directed by ENGINEER.

1. Records: Prepare and submit to the Owner a reproducible or list in duplicate, as directed, indicating size and location of all valves installed. Reference valves by distance and direction from enough prominent and permanent landmarks to assure ease of location.
- B. Cut-in to or Tap Existing Main: Cut into and connect pressure lines constructed under this contract to existing mains, now in service, at locations shown or as directed by the ENGINEER. Construct cut-ins meeting the requirements of all applicable portions of these parties in advance whenever construction requires the interruption of service. Schedule operations to cause a minimum of inconvenience to the customers by the interruption of service. Provide sufficient fittings and operating equipment on the site before starting operations. Test, and flush new lines as specified hereinafter and obtain approval of the ENGINEER before putting a connection to an existing line into service. Temporary by-pass pumping of pump stations will be required for connection to existing mains.

END OF SECTION

## SECTION 02650

### REMOVAL OR ABANDONMENT OF EXISTING POTABLE WATER MAINS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION AND GENERAL REQUIREMENTS

- A. Work included under this Section consist of removal or grouting (infilling) sections of existing potable water main pipe.
- B. The CONTRACTOR shall furnish all labor, equipment and materials necessary to perform all the work associated with the removal of potable water mains or taking out of service of potable water mains by injection of cementitious grout.
- C. All work associated with the removal or taking out of service of existing asbestos cement water mains and appurtenances shall be performed by a licensed asbestos abatement CONTRACTOR or SUBCONTRACTOR registered in the State of Florida.
- D. The asbestos abatement CONTRACTOR or SUBCONTRACTOR shall contact the Seminole County Environmental Services Department prior to removal or taking out of service of any asbestos material and shall obtain all required permits and licenses and issue all required notices. The CONTRACTOR shall be responsible for all fees associated with permits, licenses and notices to the governing regulatory agencies.
- E. All work associated with asbestos cement water mains shall be performed in accordance with the standards listed below and all other applicable local, State, or Federal standards.
  - 1. Florida Administrative Code, Chapter 17-251, "Asbestos".
  - 2. National Emission Standards Hazardous Air Pollution (NESHAP), 40 CFR Part 61, Subpart M, latest revision.
  - 3. Occupational Safety and Health Act, 29 CFR
  - 4. The Environmental Protection Agency (EPA) Asbestos Abatement Worker Protection Rule.
  - 5. Florida Statute 455.300.

## 1.02 SUBMITTALS

- A. The CONTRACTOR shall submit to the ENGINEER a list of qualifications including references of his activities performing similar work for a minimum of three years. At least three (3) references must be given listing name of project, description of work, project cost and contact person.
- B. As a minimum, the CONTRACTOR shall submit to the ENGINEER a weekly schedule of work. At the ENGINEER's request, the CONTRACTOR shall provide daily updates of this schedule.
- C. The CONTRACTOR shall submit grout mixture data and the results from grout mixture test to the ENGINEER for approval prior to performing grouting operations.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. The following is a suggested trial grout mixture for a one (1) cubic yard yield, however, the actual grout mixture to be used shall meet all of the requirements specified below.

Cement:	500 pounds
Fly Ash:	500 pounds
Water:	350 pounds (42 gallons)
Sand:	2,248 pounds
Darex (W.R.Grace):	3 ounces (Air Entrainment Additive or equivalent)
Bentonite:	6 pounds (to be mixed with sufficient water in colloidal mixture and added at the job site)

- B. The mixture used for grouting shall be of a creamy consistency. Samples of the grout mixture when set aside in a standard concrete test mold shall show less than one percent of the mixture height of free water on the surface after standing not less than 12 hours.
- C. One set of three (3) 3" x 6" sample test cylinders shall be made for each mix preparation. The minimum 28 day strength shall be no less than 1000 psi. The required slump is 5 inches. The maximum allowable slump is 9 inches. Slump should be as low as practical to maintain viscosity, proper "flow," and still retain ability to pump.

## PART 3 - EXECUTION

### 3.01 REMOVAL OF EXISTING PIPE

- A. CONTRACTOR shall uncover and remove existing pipe as shown on the Drawings. No pipe shall be removed until the new pipe is installed and placed in operation.
- B. All buried pipe uncovered and removed from the trench shall be properly disposed by the CONTRACTOR unless the Owner has specifically requested that the pipe be salvaged to the Owner.
- C. Exposing and removing existing asbestos-cement pipe shall be performed in strict accordance with all applicable rules, regulations, laws and standards. The CONTRACTOR shall be responsible for ensuring that all rules, regulations, laws, and standards are met and for monitoring quality control.
- D. All asbestos-cement pipe shall be properly disposed in accordance with all rules, regulations, laws, and standards.

### 3.02 IN-PLACE GROUTING OF EXISTING PIPE

- A. Grout shall be introduced into the lowest end of the line section to be grouted in order to displace air and entrapped water within the pipeline. The ends of these sections shall be capped. Grouting of pipes shall be completed in sections not exceeding 400 feet in length and shall not be completed in more than three (3) stages with the final stage containing at least 50 percent of the volume to be grouted for the section.
- B. The grouting program shall consist of pumping sand-cement grout with suitable chemical additives at pressures necessary to fill the pipe sections in order to prevent the potential for future collapse.
- C. The pump used for grouting should be a continuous flow, positive displacement model with a pugmill type mixing vat having a minimum shaft speed of 60 rpm and incorporated as an integral part of the equipment. Alternate equipment may be used subject to the approval of the ENGINEER. The rate of pumping shall not exceed six (6) cubic feet per minute.
- D. The CONTRACTOR shall provide standpipes and/or additional means of visual inspections as required by the ENGINEER to determine if adequate grout material has filled the entire pipe section(s). The CONTRACTOR shall make necessary provisions for the ENGINEER's representative to monitor all grouting operations.



- E. All pipe to be taken out of service shall be capped or plugged with a fitting or material that will prevent soil or other material from entering the pipe. All caps and plugs shall be subject to approval by the ENGINEER.

### 3.03 MONITORING

- A. The ENGINEER or COUNTY representative may stop the grouting operations at any time, if in his judgement, the operation does not comply with these Specifications or if the work is not to his satisfaction.
- B. The ENGINEER or COUNTY representative shall make all measurements of pipe length grouted and grout quantity pumped, and maintain records of each day's operations for the benefit of the Owner and the CONTRACTOR. The quantities recorded by the ENGINEER or his representative shall be considered final.

END OF SECTION

## SECTION 02666-IDENTIFICATION AND MARKING MATERIALS

### PART 1 - GENERAL - Not Used

### PART 2 - PRODUCTS

#### 2.01 ELECTRONIC MARKER BALLS

- A. Electronic marker balls and a continuous, insulated 10 gauge copper wire shall be installed on all Seminole County owned utility systems for location purposes. Marker balls shall consist of a passive device capable of reflecting a specifically designated repulse frequency tuned to the utility being installed. Balls shall be four inches (4") in diameter with a high density polyethylene shell. Marker balls shall be color coded in accordance with American Public Works Association's Utility Location and Coordinating Council Standards. Balls shall be as manufactured by Scotch-Mark Locator System.
- B. Marker balls shall be Omni Markers four inch (4") diameter as follows:
  - 1. Water- Model 161 blue
  - 2. Wastewater force mains-Model 162 green
  - 3. Reuse-Model 162 green
  - 4. Electrical 160 red

#### 2.02 LOCATING WIRE

All pressure mains shall be installed with a continuous color-coded. Insulated 10 gauge solid core copper wire installed directly on top of the pipe.

#### 2.03 PRESSURE PIPE IDENTIFICATION

- A. PVC pressure pipe and PE tubing shall be color coded. Blue shall be used for potable water, green shall be used for pressure sewer mains, and pantone purple shall be used for reclaimed water mains. In order to preclude possible domestic water tapping, all underground ductile iron sanitary sewage force mains and reclaimed mains shall be marked with a continuous painted stripe; stripe shall be two-inch (2") minimum width located within the top ninety degrees (90°) of the pipe. Sanitary sewage force main shall be green and reclaimed mains shall be pantone purple.
- B. All polyethylene pipe shall be black, and shall contain a continuous colored stripe, 2 inches wide, located at no greater than 90 degree intervals around the pipe. Stripes shall be impregnated or molded into the

pipe by the manufacturer. Application of the stripes after manufacture is not acceptable. Stripe color shall be:

1. Potable Water Mains - blue stripes
2. Reclaimed Water Mains - purple stripes
3. Force Mains - brown stripes

- C. Identification tape shall be Lineguard as manufactured by Lineguard, Inc., Wheaton, IL consisting of a two inch (2") minimum width plastic and metallized foil for detection by pipeline locating equipment. Tape shall be coded as follows:

PIPE	COLOR	PRINTING
Potable Water	Blue	"Caution Buried Water Line Below"
Reuse Water	Purple	"Reclaimed Water Buried Below"
Force Main	Brown	"Caution Buried Force Main Below"

## 2.04 OTHER IDENTIFICATION REQUIREMENTS

- A. Water Service: Seminole County water services will be marked with a 2" x 4" x 4' minimum wood stake or a 2" diameter x 4' minimum long PVC pipe placed vertically in ground with the top 2' painted blue located behind the meter box and a minimum marker burial depth of 2'. Additionally, 3" wide by 6" high letters will be etched or cut in the concrete curb and painted blue. Use the letter "W" for water services, "V" for valves, and "B.O." for blow offs.
- B. Sewer Lateral: Seminole County sewer lateral locations will be marked by etching or cutting a 3" wide x 6" high "S" in the concrete curb and then painting it red. The terminal end of the lateral will have a 2" x 4" x 4' minimum wood stake or a 2" diameter x 4' long minimum PVC pipe placed at its invert and extending a minimum of 2' above finished grade with the top 2' painted red and a minimum marker burial depth of 2'. In addition, there will be a re-usable electronic marker ball installed County Detail C-21A
- C. Valve Boxes and Meter Boxes: Covers are to be marked with permanently affixed, minimum 1½" letters to identify as follows:
- |         |   |                    |
|---------|---|--------------------|
| "WATER" | - | Potable Water      |
| "REUSE" | - | Reclaimed Water    |
| "SEWER" | - | Sanitary Forcemain |

## PART 3 - EXECUTION

### 3.01 ELECTRONIC MARKER BALLS

- A. On water, force mains, and reuse systems, electronic markers shall be furnished and installed so that a marker will be located at one hundred foot (100') intervals along the pipeline length. Markers shall also be placed at changes in direction, tees, or other points of connection and as directed by the Engineer. On gravity sewer systems, markers will only be placed at the terminal ends of the service laterals.
- B. Marker balls shall be placed in a position directly above the pipe and hand backfilled one foot (1') above the ball to prevent damage or movement during subsequent backfilling. Depth of burial shall not be less than one and one half feet (1½') nor more than two feet (2').

### 3.02 IDENTIFICATION TAPE

During the backfilling operating, install pipe-locating tape one foot below grade directly above and parallel to the pipe run with the printed side up for visual identification.

END OF SECTION

SECTION 02675-DISINFECTION, CLEANING  
AND TESTING OF WATER AND SEWER MAINS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Cleaning, disinfection, biological testing, pressure testing, and inspection of potable and reclaimed water distribution systems and wastewater collection systems.

1.02 PAYMENT

- A. Payment for cleaning and disinfecting water mains, fittings, and appurtenances shall be incidental to the work.
- B. Payment for construction of sample taps and laboratory testing shall be incidental to the work.

1.03 REFERENCES

- A. AWWA C651 - Disinfecting Water Mains.
- B. Florida Administrative Code, Chapter 10D4 - Water Systems.
- C. ASTM F2164 - Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure

1.04 SUBMITTALS (NOT APPLICABLE)

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 FLUSHING

- A. All water and force mains shall be full diameter flushed to remove all sand and other foreign matter. A flushing plan is to be submitted to the Project Manager prior to flushing. The velocity of the flushing water shall be

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sufficient to remove all foreign material including sand. Flushing shall be terminated at the direction of the ENGINEER. The CONTRACTOR shall dispose of the flushing water without causing a nuisance or property damage.

### 3.02 TESTING OF PRESSURE MAINS (PVC AND DI PIPE)

- A. Leakage Test: Leakage and pressure tests shall be conducted in the presence of the Engineer. The Contractor will provide a suitable pressure gauge for the test. The Contractor will provide all other necessary apparatus including a pump, flow measuring device, piping connections and fittings and the necessary labor to conduct the tests. The pressure test shall be of two hour duration. During the pressure test, the pipe being tested shall be maintained at a pressure of not less than 150 psi. During the leakage test, the piping being tested shall be maintained at operating pressure. Leakage is defined as the quantity of water added to the pipe being tested during the test period. No pipe installation will be accepted if the leakage exceeds the quantities specified in AWWA C-600, Section 4.2. Visible leakage shall be corrected regardless of total leakage. The Contractor shall submit to the Engineer the testing pattern he proposes to follow prior to testing for the Engineer's approval.
- B. Flushing of Completed Pipelines: Following the leakage test, each section of completed pipeline shall be as thoroughly flushed as possible. A minimum flow shall be used for flushing that will insure a velocity in the pipe of 2.5 ft. per second. Water required for testing and flushing shall be furnished by the Contractor. The water shall be from a potable water source satisfactory to the Owner.
- C. Water for Testing and Flushing: Water required for testing and flushing shall be furnished by the Contractor. The water shall be from a potable water source satisfactory to the Owner. The cost of the water shall be included in the unit cost of the pipe and no separate payment will be made for this item.

### 3.03 TESTING OF PRESSURE MAINS (POLYETHYLENE PIPE)

- A. Conduct hydrostatic pressure testing of installed polyethylene pipe in accordance with ASTM F2164.
- B. Piping shall be slowly filled with water and all air expelled. Care shall be taken that all air valves are installed and open in the section being filled,

and that the rate of filling does not exceed the venting capacity of the air valves.

- C. Subject pipeline to be tested to a 4 hour expansion phase prior to commencing leakage testing. Pipeline expansion shall be accomplished by applying hydrostatic test pressure of 150 psi (water mains), 200 psi (fire mains) or 100 psi (reclaimed water mains). In order to compensate for the initial expansion of the pipeline, add sufficient make-up water at hourly intervals to return to the required test pressure. At the end of the fourth hour, the test phase is to commence.
- D. At the conclusion of the fourth hour of the expansion phase, fill the pipeline again with makeup water to return to the test pressure. The test phase shall consist of a two hour or three hour pressure test, as required by the Engineer. At the end of the test phase, measure the amount of makeup water required to return to the test pressure. The pipeline passes the pressure test if the makeup water required does not exceed the following:

Nominal Pipe Size (In)	Allowable Makeup Water (Gallons / 100 Ft Of Pipeline)	
	Two Hour Test	Three Hour Test
2	0.11	0.19
4	0.25	0.4
6	0.6	0.9
8	1.0	1.5
10	1.3	2.1
12	2.3	3.4
16	3.3	5.0
18	4.3	6.5
20	5.5	8.0
24	8.9	13.3
28	11.1	16.8

- D. If any defects or leaks are revealed, they should be corrected and the pipeline retested after a minimum 24 hour recuperation period between tests. Total testing conducted on a section of pipeline shall not exceed 8 hours within a 24 hour period.
- E. All apparent leaks discovered within one year from the date of final acceptance of the work by the Owner shall be located and repaired by

Contractor, regardless of the total line leakage rate.

3.04 CLEANING, DISINFECTION, STERILIZATION AND BACTERIOLOGICAL TESTING OF WATER MAINS

- A. The Contractor shall flush mains and arrange for complete sterilization by chlorination to be accomplished under the direction of the Engineer. Work shall conform to applicable provisions of AWWA C651 "Disinfecting Water Mains." Water with a chlorine content of 100 PPM shall be evenly distributed throughout the pipe system and allowed to remain in the pipe for 24 hours before it is flushed out and samples are taken by the County's designated sampler. Water mains shall not be flushed between samples. If such samples do not demonstrate satisfactory results, rechlorination and payment for additional samples will be required. Service connections made before testing shall be disinfected also.
- B. Contractor shall construct sample taps at the locations shown on the drawings or as required by the Local Health Unit.
- C. Sample taps shall be left running so that samples may be collected by the testing laboratory as required by the Local Health Unit.
- D. Should samples be unsatisfactory, Contractor shall rechlorinate the pipe lines, reflush, and set up additional sampling with the testing laboratory until accepted by the Engineer.

3.05 GRAVITY SEWER TESTING - N/A

3.06 FIRE HYDRANT TESTING

The Contractor shall provide a post-construction fire flow test witnessed and approved by the County. Hydrants shall deliver a minimum of 1250 gpm with a residual pressure of 20 psi.

3.07 FIELD QUALITY CONTROL

- A. All tests, inspections, disinfection and record drawings shall be conducted and prepared in accordance with Seminole County Water and Sewer Standards as contained in the Land Development Code.
- B. The County reserves the right to require main clearing and flushing activities to be performed during periods of low demand, depending upon the volume



and rate of water required to perform the activities. Low demand periods typically occur between midnight and 5:30 a.m. Should the County impose this requirement on the Contractor, it shall be done at no additional cost to the County.

END OF SECTION

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SECTION 02820  
FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General Fence Requirements
- B. Fence Gates

1.02 REFERENCES

- A. Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction and Roadway and Traffic Design Standards, latest implemented editions:
  - 1. Index No. 452 - Fence Type B
  - 2. Specification Section 550 - Fencing

1.03 SCOPE OF WORK

- A. Furnish all materials, equipment, transportation, tools and labor, unless otherwise specified, to construct fencing and other appurtenances, and all items called for or that could reasonably be inferred from the drawings, including fabric, posts, frame, bracing, gates and all accessories for a complete job ready to operate. If any items for a complete job are omitted or not shown, the Contractor shall furnish and install the same without cost to the Owner.
- B. For projects that require fence to be removed and replaced, the intent is to reinstall removed fence. Where fence has been damaged or cannot be reused, replace with new fence meeting these specifications and matching the height, color of fabric, and accessories (such as barbed wire attachments) as the existing fence.

1.04 SUBMITTALS

- A. Provide product data and shop drawings for all posts, rails, chain link fence fabric, tension wire, gates.
- B. Provide drawings indicating the location of all pull posts and gate locations.

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## PART 2 PRODUCTS

### 2.01 GENERAL

All fence and gate material shall be FDOT Fence Type B, per FDOT Roadway and Traffic Design Standards and Standard Specifications for Road and Bridge Construction. Per these standards, there are a number of options for the fence materials. Listed below are the material options selected by the Owner to be used for this project.

### 2.02 LINE POSTS

- A. Zinc galvanized steel pipe (galvanized at 1.8 oz per square foot), Schedule 40.
- B. Required Size:
  - 1. General Fencing (ponds, right-of-way, property boundaries): 1½ inch nominal diameter
  - 2. Lift Station Site Fencing: 2 inch nominal diameter

### 2.03 CORNER, END, AND PULL POSTS

- A. Zinc galvanized steel pipe (galvanized at 1.8 oz per square foot), Schedule 40.
- B. Required Size:
  - 1. General Fencing (ponds, right-of-way, property boundaries): 2 inch nominal diameter
  - 2. Lift Station Site Fencing: 3 inch nominal diameter

### 2.04 RAIL

- A. Zinc galvanized steel pipe (galvanized at 1.8 oz per square foot), Schedule 40.
- B. Required Size:
  - 1. General Fencing (ponds, right-of-way, property boundaries): 1¼ inch nominal diameter
  - 2. Lift Station Site Fencing: 1½ inch nominal diameter

## 2.05 CHAIN LINK FABRIC

- A. No. 9 gage steel wire zinc coated (coated at 1.8 oz per square foot). The gage requirement refers to the wire plus zinc coated diameter, and does not include any other coatings.
- B. Top to be twisted and barbed, bottom to be knuckles.
- C. Required Mesh Size:
  - 1. General Fencing (ponds, right-of-way, property boundaries): 2 inch
  - 2. Lift Station Site Fencing: 1 inch
- E. Required Height (measured from bottom of fabric to top of fabric):
  - 1. General Fencing (ponds, right-of-way, property boundaries): 5 feet
  - 2. Lift Station Site Fencing: 7 feet

## 2.06 TENSION WIRE

No. 7 gage steel wire zinc galvanized (galvanized at 1.8 oz per square foot). The gage requirement refers to the wire plus zinc coated diameter, and does not include any other coatings.

## 2.07 TIE WIRE

No. 9 gage steel wire zinc galvanized (galvanized at 1.8 oz per square foot). The gage requirement refers to the wire plus zinc coated diameter, and does not include any other coatings.

## 2.08 GATES

- A. Provide single swing gate, hinged to swing total of 180 degrees so gate can swing in or out. Also provide latches, locking device.
- B. All materials to match fencing materials identified above.
- C. Height of gate to match height of fence. Gate opening to be 48 inches.

## 2.09 MISCELLANEOUS HARDWARE

Zinc coated commercial grade steel.

## PART 3 EXECUTION

### 3.01 POSTS

Embed all posts in 3000 psi concrete bases. All posts to extend 3 feet minimum into concrete base. All concrete base diameters to be 12 inches, top of base to be crowned 1 inch above grade, bottom of base to be 6 inches below bottom of post.

### 3.02 FENCE FABRIC, WIRE, RAILS, AND ACCESSORIES

Install per FDOT requirements.

END OF SECTION

## SECTION 02930 - GRASSING AND SODDING

### PART 1 - GENERAL

1.01 DESCRIPTION: The Contractor shall furnish all materials and labor necessary for construction. It is the intent of this specification that damaged areas are to be replaced in kind, with sod to be used for all maintained yard areas.

1.02 STORAGE OF MATERIALS: The Contractor shall provide space for storage of sod prior to placement in a manner that will not endanger or restrict pedestrian or vehicular traffic or interfere with other aspects of the work.

1.03 All disturbed areas having slopes in excess of 3:1, located drainage ditch or located within existing landscaped areas with turf grass shall be restored with solid sodding.

### PART 2 - PRODUCTS

2.01 SOD: Sodding shall be in accordance with section 575-1 through 575-2 of the DOT Specifications. Sod being replaced in existing sodded areas shall be replaced in kind. Sod in new areas shall be St. Augustine Floratam. Sod in existing areas shall match existing sod type, as approved by the Engineer.

2.02 GRASS: Grassing shall be in accordance with Section 570-1 through 570-3 of the DOT Specifications. All seed shall be Argentine Bahia.

### PART 3 - EXECUTION

#### 3.01 SOD AND MULCHING:

- A. Sodding shall be in accordance with Section 575-3 of the DOT Specifications.
- B. Grassing shall be in accordance with Section 570-4 through 570-5 of the DOT Specifications.
- C. Mulching shall be in accordance with Section 570-4.6 of the DOT Specifications.

3.02 MAINTENANCE: Grassing, sodding and mulching shall be maintained in accordance with Section 570-4.8 and 570-5 of the DOT Specifications.

3.03 SPRINKLER SYSTEM: Where sprinkler/irrigation systems require repair or replacement, the Contractor's sodding or seeding operation shall not commence until the Engineer has approved the repaired or replaced system.

END OF SECTION

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## SECTION 03300 - CONCRETE WORK

### PART 1 - GENERAL

#### 1.01 SECTION INCLUDES

- A. Formwork for structural concrete.
- B. Reinforcing steel.
- C. Cast-in-place concrete.

#### 1.02 SYSTEM DESCRIPTION

- A. Design/Performance Requirements: Design, engineering and construction of formwork and shoring is responsibility of the Contractor.
  - 1. Design formwork with sufficient strength to withstand forces due to placement and vibration and sufficient rigidity to maintain specified tolerances.
  - 2. Design loads, lateral pressure, and allowable stresses in accordance with ACI 347.

#### 1.03 SUBMITTALS

- A. Product Data: Manufacturers data and application and installation recommendations for admixtures, curing compounds, and others as requested.
- B. Mix Designs: Copies of each mix design required. Include specific admixture names and proportions for each mix design. Submit statistical strength data in accordance with ACI Code.
- C. Shop Drawings: Submit detail drawings for reinforcing steel in compliance with ACI 315.

### PART 2 - PRODUCTS

#### 2.01 FORM MATERIALS

- A. Structural Concrete Forms for Beams, Columns, and Slabs: New or properly reconditioned plywood material designed to conform to requirements of ACI



Special Publication No. 4 to support wet concrete without deflection; PS-1 B-B plywood; Class 1; EXT-APA; sanded; mill oiled; and edge sealed.

- B. Form Coatings: Colorless commercial formulation form release and sealer compounds that will not bond with stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
- C. Form Ties: Adjustable length, removable or snapoff metal form ties, 1-1/2 in. break back, and maximum hole left 1-1/4 in. diameter.
- D. Bevels and Rustications: Wood strips milled to shapes indicated or formed rigid plastic strips.
- E. Construction Joints: 24 ga. galvanized steel keyway form type with knockout holes spaced 6 in. on center to receive doweling.
- F. Joint Fillers: Premolded mastic strips, asphalt impregnated, ASTM D1751.

## 2.02 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- C. Welded Wire Fabric: ASTM A 185; welded.
- D. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place.
- E. Tie Wire: 16 ga. annealed.
- F. Fabricate reinforcing in accordance with ACI 315.

## 2.03 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
- B. Fly Ash: ASTM C 618, Type F, except that the maximum allowable loss on ignition shall be 2.5 percent and a maximum of 24 plus or minus 2 percent may be retained on a no. 325 sieve. Use one source of fly ash throughout project. Add with cement.
- C. Aggregates:

1. Coarse: ASTM C 33, clean, washed, sound and crushed, from a single source for exposed concrete. Use largest size practicable for each condition except do not exceed the following:
    - a. 1/5 the narrowest dimension between forms.
    - b. 3/4 in. min. clear spacing between reinforcing bars.
    - c. 1/3 the thickness of slabs.
  2. Fine: ASTM C 33, clean, washed sand, sound and uncoated grains.
  3. Local aggregates not complying with ASTM C 33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to - Engineer.
- D. Water: Potable or reclaimed.
- E. Air-Entraining Admixture: ASTM C 260.
- F. Water-Reducing Admixture: ASTM C 494, Type A, and containing not more than 0.1 percent chloride ions.
- G. Water-Reducing, Non-Chloride Accelerator Admixture: ASTM C 494, Type E, and containing not more than 0.1 percent chloride ions.
- H. Water Reducing, Retarding Admixture: ASTM C 494, Type D, and containing not more than 0.1 percent chloride ions.

#### 2.04 RELATED MATERIALS

- A. Non-Shrink Grout: CRD-C 621, non-metallic factory pre-mixed grout, minimum compressive strength of 2400 psi in 2 days and 7000 psi in 28 days.
- B. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.
- C. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
  1. Waterproof paper.
  2. Polyethylene film.
  3. Polyethylene-coated burlap.

- D. Liquid Membrane Forming Curing Compound: ASTM C 309, Type 1-D, Class A. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. ft./gal.
- E. Bonding Compound: Acrylic or Styrene Butadiene base. Source Products/Mfgs.:
1. Everbond/L & M Construction Chemicals.
  2. Sonocrete/Sonneborn-Rexnord.
  3. Acrylic Bondcrete/The Burke Co.
  4. Daraweld C/W.R. Grace.
- F. Epoxy Adhesive: ASTM C 881, 2 component material suitable for use on dry or damp surfaces. Provide material Type, Grade, and Class to suit project requirements. Source Products/Mfgs.:
1. Thiopoxy/W.R. Grace.
  2. Sikadur Hi-Mod/Sika Chemical Corp.
  3. Euco Epoxy 452 or 620/Euclid Chemical Co.
  4. Patch and Bond Epoxy/The Burke Co.

## 2.05 PROPORTIONING AND DESIGN OF MIXES

- A. Owner shall provide and pay for Testing Laboratory services for preparation of design mixes for each type and strength of concrete by either laboratory trial batch or past field experience methods as specified in ACI 301.
1. Proportion materials as specified in ACI 211.1, except as modified herein.
  2. Fly Ash: Maximum 20 percent by weight of total cementitious material of mix.
  3. Do not begin concrete production until mixes have been reviewed and approved by Engineer.
- B. Schedule of Concrete Types: Provide mix designs for the compressive strength scheduled with the following minimum properties:

<u>Minimum 28 day Compressive Strength (fc) (psi)</u>	<u>Maximum Water-Cement Ratio by Weight (lb/lb)</u>	<u>Minimum Cement Content (lbs/Cubic Yard)</u>
2500	0.55	423
3000	0.50	470

4000

0.45

564

1. Introduce admixtures in quantities and according to methods recommended by the admixture manufacturer. Do not use calcium chloride.
  2. All concrete for sanitary structures shall be 4,000 PSI minimum.
- C. Air Entrainment: Provide concrete with total air content as follows, and as measured in accordance with ASTM C 231:

<u>Nominal maximum size of coarse aggregate, in.</u>	<u>Total air content percentage by volume</u>
3/8	6 to 10
1/2	5 to 9
3/4	4 to 8
1	3.5 to 6.5
1-1/2	3 to 6

- D. Slump Limits: Concrete, when placed at the forms, shall have a slump within the following limits as measured in accordance with ASTM C 143.
1. Minimum slump of one in.
  2. Tolerance of plus or minus one in.
  3. Mass concrete: 2 in.
  4. Reinforced concrete: 3 in.

## 2.06 CONCRETE MIXING

- A. Provide batch ticket for each batch discharged and used in work.
- B. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
  1. Mix concrete minimum 10 minutes, 5 minutes of which is at job site, after last addition of water.
  2. Do not retemper concrete in truck. Do not use concrete which has been in truck for more than 1-1/2 hours after addition of water, or concrete which has become harsh or nonplastic.
  3. Do not add water to concrete at site.
- C. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

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## PART 3 - EXECUTION

### 3.01 EXAMINATION AND PREPARATION

- A. Coordinate and examine formwork, reinforcing steel, embed inserts, sleeves, joint materials and vapor retarder for proper installation.
- B. Do not proceed until unsatisfactory work has been corrected.

### 3.02 INSTALLATION

- A. Design, erect, support, brace, and maintain formwork to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure.
  - 1. Allowable tolerances for Structural Concrete Forms shall comply with ACI 301 and 347; camber in slabs and beams shall comply with ACI 301.
  - 2. Locate and install formed construction joints as shown or, if not indicated, locate so as not to impair strength and appearance of the structure, and as approved by the Engineer.
  - 3. Provide keyways at least 1-1/2 in. deep in construction joints in walls, slabs, and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.
- B. Space shoring in such a manner that no member will be excessively loaded or will induce stress in concrete members. Extend shores beyond minimums to ensure proper distribution of loads throughout structure.
- C. Comply with CRSI Manual of Standard Practice, ACI 315, and ACI 318 for details and methods of reinforcement, placement, and supports.
  - 1. Clean reinforcement of loose rust and mill scale, earth, and other materials which reduce or destroy bond with concrete.
  - 2. Where conduit, piping, inserts, and other penetrations or sleeves interfere with the placing of reinforcing steel, notify Engineer and obtain directions for relocating prior to pouring concrete.
- D. Concrete Placement:
  - 1. Moisten wood forms immediately before placing concrete where form coatings are not used.
  - 2. Comply with ACI 304, Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete, and as herein specified.

3. Deposit concrete in forms in horizontal layers not deeper than 24 in.; place each layer while preceding layer is still plastic to avoid cold joints.
4. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping in accordance with ACI 309.
5. Do not use vibrators to transport concrete inside forms. Do not insert vibrators into lower layers of concrete that have begun to set.
6. Deposit and consolidate concrete slabs in a continuous operation within limits of construction joints.
7. Bring slab surfaces to correct level with straightedge and strikeoff. Do not disturb slab surfaces prior to beginning finishing operations.
8. Maintain reinforcing, inserts, embeds, and joints in proper position during concrete placement operations.

E. Reinforcement Concrete Coverage:

1. Concrete cast against and permanently exposed to earth: 3 in.
2. Concrete exposed to a retained liquid: 3 in.
3. Concrete exposed to earth or weather: 2 in.
4. Slabs and walls not exposed to weather or in contact with ground: 1-1/2 in.
5. Beams and columns not exposed to weather or in contact with ground - primary reinforcement, ties, stirrups, and spirals: 1-1/2 in.

F. In the event of rain during concrete placement, terminate pour as soon as practicable at a point approved by the Engineer and protect freshly placed concrete with a waterproof covering that will prevent marring or damage of surfaces.

G. Contraction (Control) Joints in Slabs-on-Ground: Saw cut 1/8 in. x 1/4 slab depth as soon as possible after slab finishing.

H. Hot Weather Placing: Comply with ACI 305 and as herein specified.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg. F.
2. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
3. Use approved water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions.

- G. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.

1. When air temperature is below 40 deg. F maintain concrete mixture temperature between 50 and 70 deg. F.
2. Do not use frozen materials or place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators.

### 3.03 REMOVAL OF FORMS AND SHORING

- A. Remove formwork and shoring progressively and in accordance with ACI 301 and ACI 347 so that no unbalanced loads are imposed on the structure. Notify Engineer when formwork removal is scheduled to begin.
- B. Do not remove shoring and formwork until members have acquired strength required to support their own weight plus imposed loads and the concrete has attained 75 percent of required 28 day compressive strength. Reshore structural members as original shores are removed.
- C. Formwork not directly supporting weight of concrete, may be removed after 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and providing curing and protection operations are maintained.
- D. In the event the Contractor wishes to remove formwork at an earlier time than specified, the Contractor shall pay for and have testing laboratory obtain 2 additional concrete test cylinders to confirm strength requirement for early form recovery.

### 3.04 FINISH OF FORMED SURFACES

- A. Repair of tie holes and deep depressions:
  1. Flush with clean water and tamp to overfill with cement drypack mix.
  2. Cure as specified for concrete and grind flush with adjacent surface.
- B. Repair of Rock Pockets, Honeycomb, and Sand Streaks:
  1. Cut and remove concrete to at least one in. deep with sides perpendicular to surface.

2. Flush with clean water, coat with Neat cement paste, then fill with cement drypack mix in at least 2 layers to overfill.
  3. Cure as specified for concrete and grind smooth and flush with adjacent surfaces.
- C. As Cast Finish: For formed concrete surfaces not exposed-to-view in the finish work.
1. Repair and patch tie holes and defective areas and rub down or chip off fins and other projections exceeding 1/4 in. in height.
  2. Fill and patch bug holes one in. and larger.

### 3.05 MONOLITHIC SLAB FINISHES

- A. Apply slab finishes in accordance with ACI 301.
1. Screed surfaces to proper elevations and profiles indicated before bleedwater accumulates on surface.
  2. Begin finish procedures as soon as bleedwater disappears from surfaces.
  3. Slope surfaces uniformly to drains where required.
- B. Float Finish: Apply to surfaces to receive trowel finish, membrane or elastic waterproofing.
1. Power float to a true plane within 1/4 in. in 10 ft. - Class B tolerance.
  2. Hand float if area is small or inaccessible to power units.
  3. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- C. Trowel Finish: Apply to surfaces to be exposed-to-view, and slab surfaces to be covered with paint.
1. Power trowel to a true plane within 1/8 in. in 10 ft. - Class A tolerance.
  2. Begin final troweling when surface produces a ringing sound then consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance
- D. Light Broom Finish: Apply to exterior concrete slabs, steps, and walks, and other pedestrian traffic areas. Apply float finish, then immediately slightly roughen concrete surface by brooming with soft fiber bristle broom perpendicular to main traffic route.

### 3.06 CONCRETE CURING AND PROTECTION

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- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Begin curing procedures before concrete has dried and continue for at least 7 days in accordance with ACI 301 procedures.
  - 1. Extend specified curing time if 7 days compressive strength tests indicate that 28 day compressive strength will be less than 90 percent of specified strength.
- C. Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture retaining cover curing, and by combinations thereof, as herein specified.
  - 1. Provide moist curing by one of the following methods.
    - a. Maintain surface continuously wet by covering with water or sprinklering.
    - b. Continuous water fog spray.
    - c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet.
  - 2. Provide moisture cover curing as follows:
    - a. Cover surface with moisture retaining cover lapped at least 12 in. and sealed by waterproof tape or adhesive.
    - b. Wet entire surface thoroughly with fine spray of water.
  - 3. Provide curing and sealing compound on exterior slabs, walks, and curbs, as follows:
    - a. Apply to concrete slabs as soon as final finishing operations are complete in continuous operation by power spray or roller in accordance with manufacturer's directions.
    - b. Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete.
    - c. Apply a second coat over areas scheduled to receive a sealer/dustproofer finish.
- D. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs, and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above.
- E. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method,

except cure surfaces to receive liquid floor hardener or finish flooring by use of moisture retaining cover.

### 3.07 FIELD QUALITY CONTROL

- A. The Owner shall employ a testing laboratory to perform test and submit test reports, except as designated otherwise.
- B. If the test results indicate the material or equipment complies with the Contract Documents, the Owner shall pay for the cost of the testing laboratory. If the tests, and any subsequent retests, indicate the material and equipment fail to meet the requirements of the Contract Documents, the Contractor shall pay the laboratory costs incurred in such tests.
- C. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
  - 1. Slump: ASTM C 143; one test at point of discharge for each set of compression cylinders taken; additional tests when concrete consistency appears to have changed. In addition, Contractor shall perform one test on each truck load of concrete delivered to the site.
  - 2. Air Content: ASTM C 231 pressure method for normal weight concrete; one for each set of compression cylinders taken.
  - 3. Molded Concrete Compression Cylinders: Sample in accordance with to ASTM C 172, process and cure in accordance with to ASTM C 31, and prepare and test in accordance with to ASTM C 39.
    - a. Obtain one set of 4 cylinders for each 50 cu. yd., or fraction thereof, for each day's placement of each mix design.
    - b. Test one cylinder at age 3 days or 7 days, as required by job conditions, and 2 cylinders for one valid strength test at 28 days.
    - c. Cure and hold fourth cylinder for testing at 42 days if 28 day test indicated deficient results, or as a spare in case of cylinder damage.

END OF SECTION

SEMINOLE COUNTY

# Fern Park

## Water System Improvements - Phase 1



SEMINOLE COUNTY  
FLORIDA'S NATURAL CHOICE

### County Commissioners

**DISTRICT 1:**  
BOB DALLARI

**DISTRICT 2:**  
RANDALL C. MORRIS

**DISTRICT 3:**  
DICK VAN DER WIEDE

**DISTRICT 4:**  
CARLTON D. HENLEY

**DISTRICT 5:**  
BRENDA CAREY

### Index of Sheets

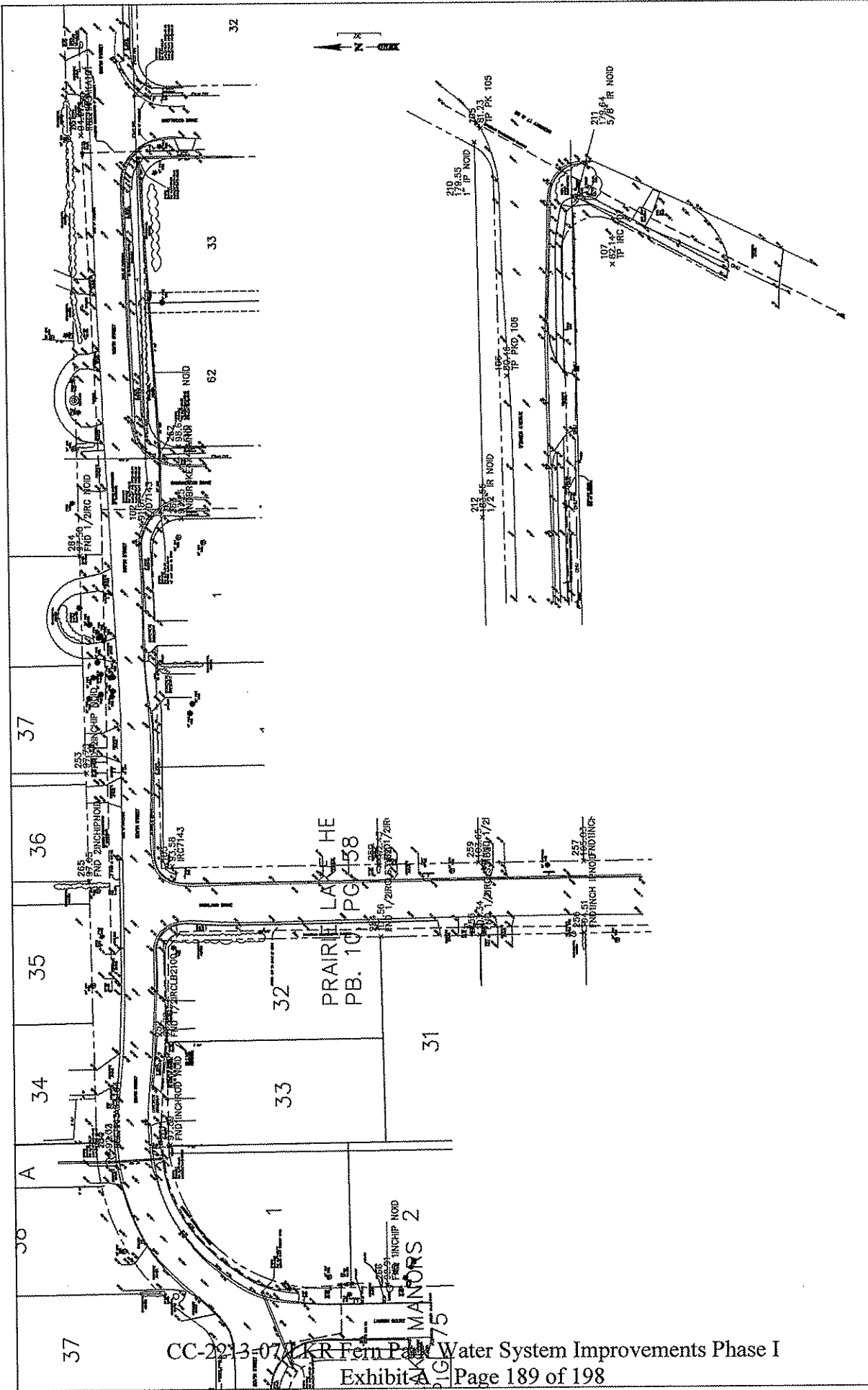
1. COVER SHEET
2. SURVEY
3. SUMMARY OF QUANTITIES
4. KEY SHEET
5. GENERAL NOTES
6. DEMOLITION PLAN
7. - 10. PLAN AND PROFILE
11. UTILITY DETAILS

**cph** Engineers  
Architects  
Surveyors  
Planners  
Landscape Architects  
Environmental Scientists  
Construction Management  
Design / Build

P.O. Box 2808 500 West Fulton Street  
Sanford, FL 32771-2808  
Phone 407-322-6641 Fax 407-330-0639  
www.cphengineers.com  
Certificate of Authorization No. 3215

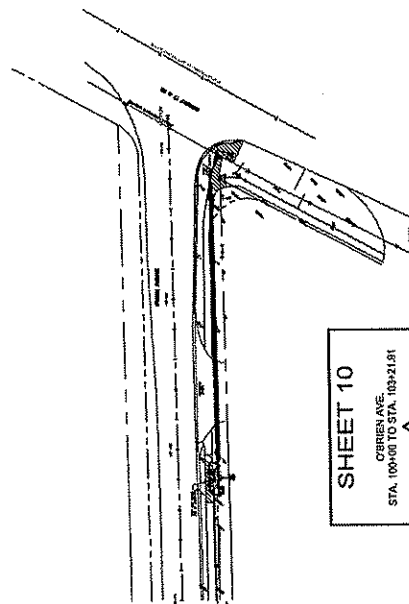
JOB# 80962  
DATE: APRIL 2007

N. Katrina Bowman, PE  
45155



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O'BRIEN AVE.  
STA 100+00 TO STA 103+21.91

## Exhibit A -- Page 192 of 198

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|--|--|--|
| TECO PEOPLE'S GAS COMPANY<br>ATTN: LAWREE WASHINGTON<br>407-420-2875 | EMBARQ<br>ATTN: PAUL MCKENNA<br>407-539-3458 | BELLSOUTH TELECOMMUNICATIONS<br>ATTN: KERRIE A. SAYDER<br>407-539-0844 |
|--|--|--|

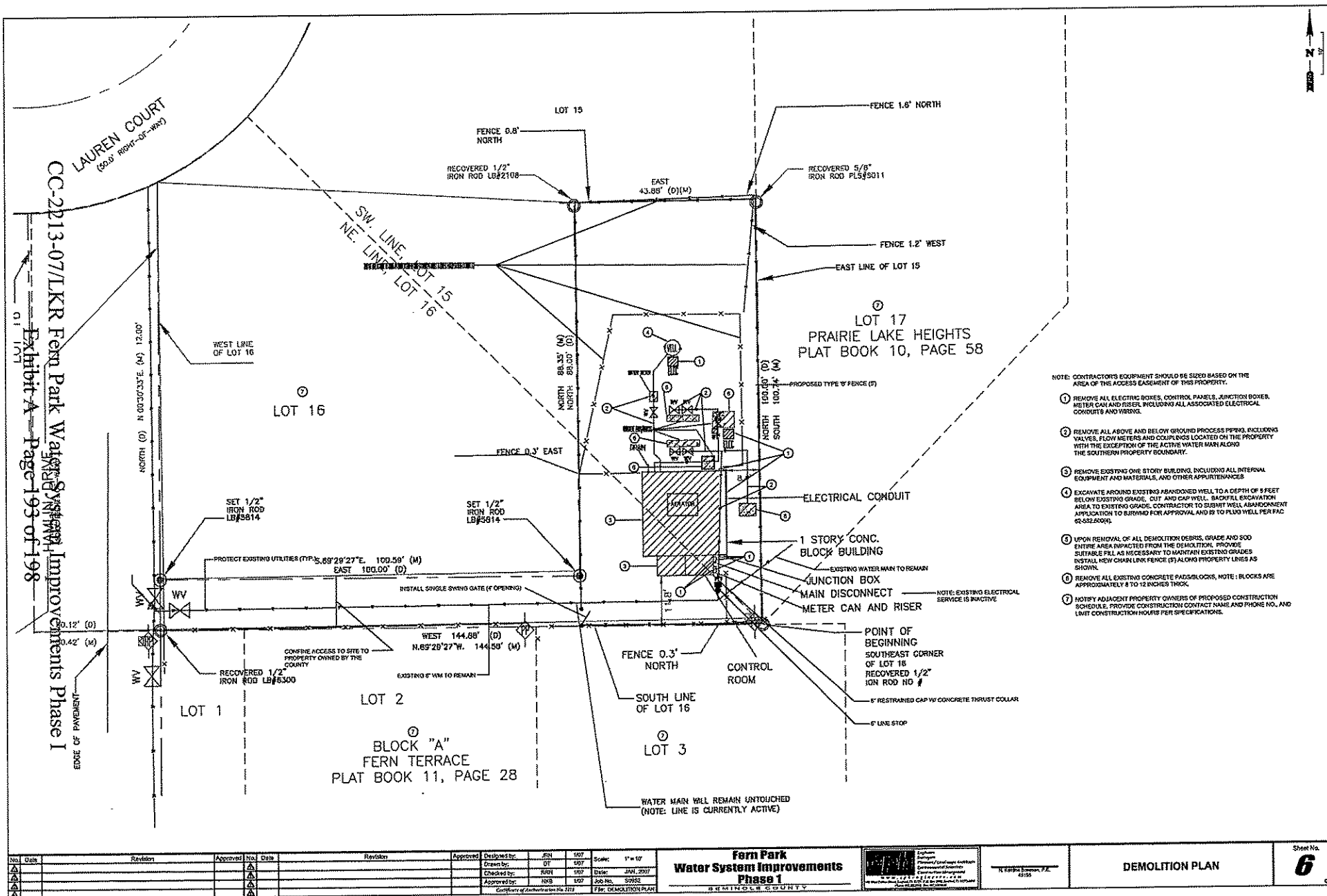
- COMPLETED OR PARTIALLY COMPLETED PAVEMENTS WITH SOUTH FACING SLOPE OF 2% OR MORE

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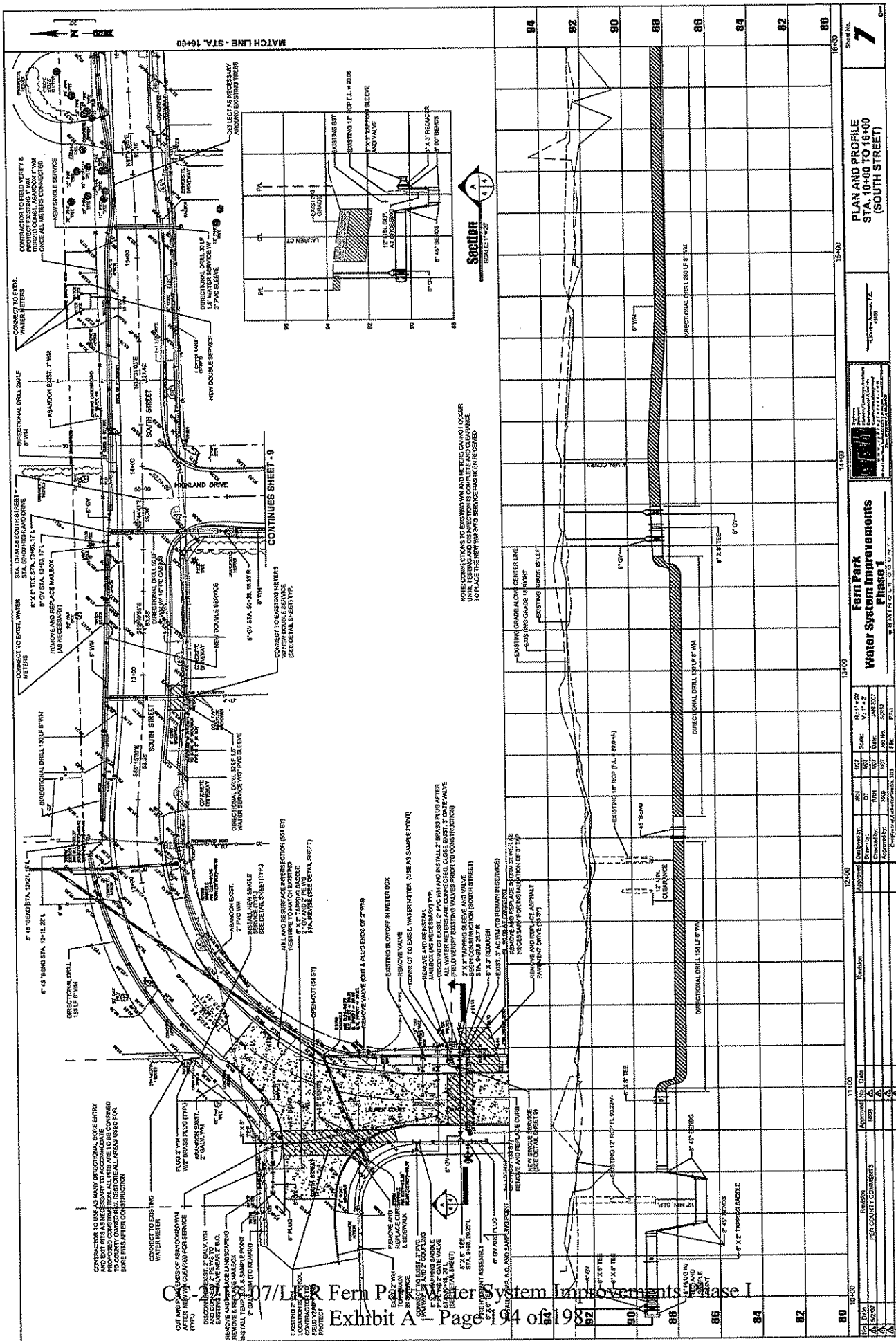
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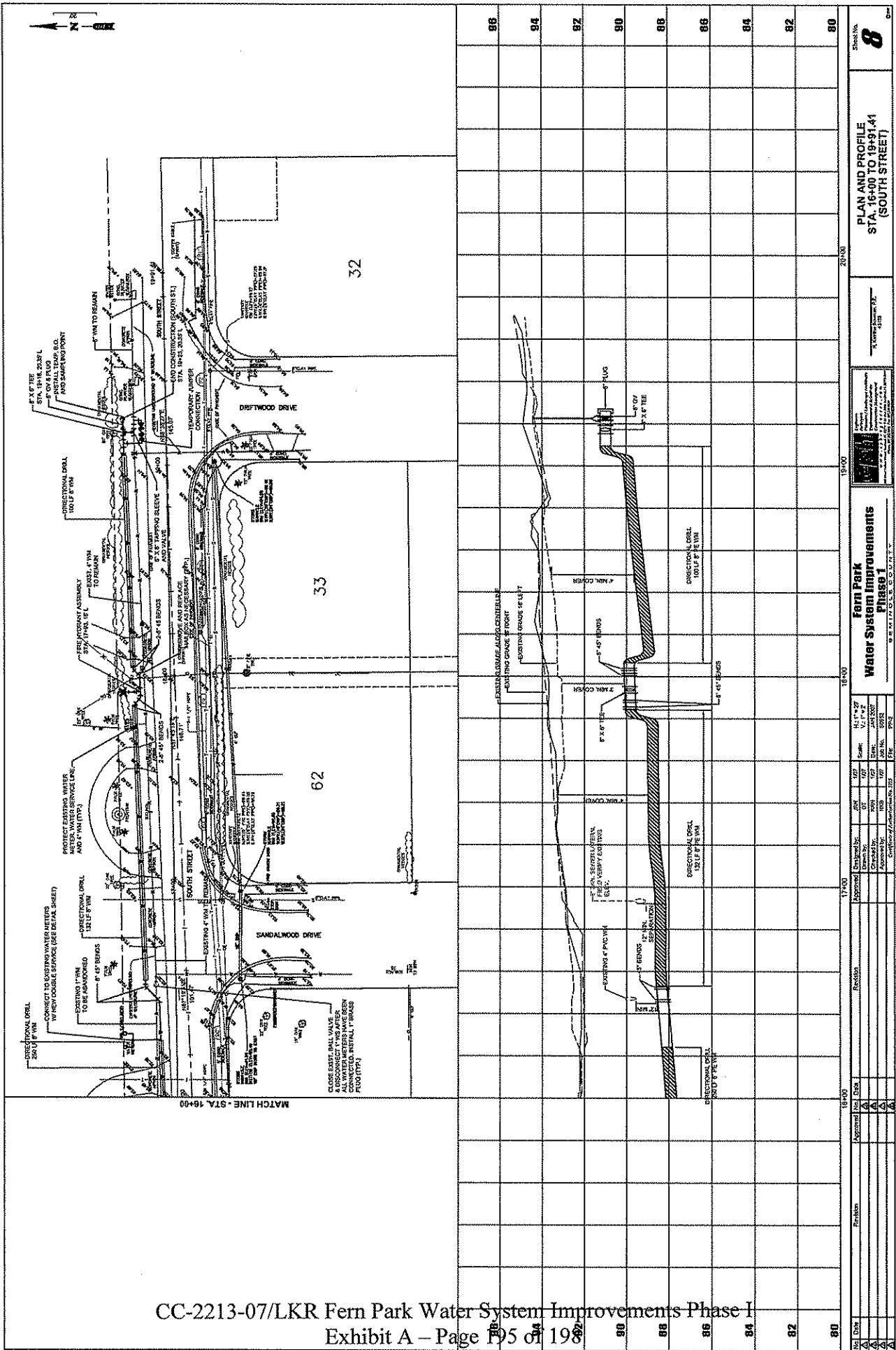
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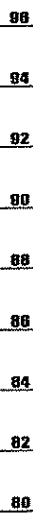
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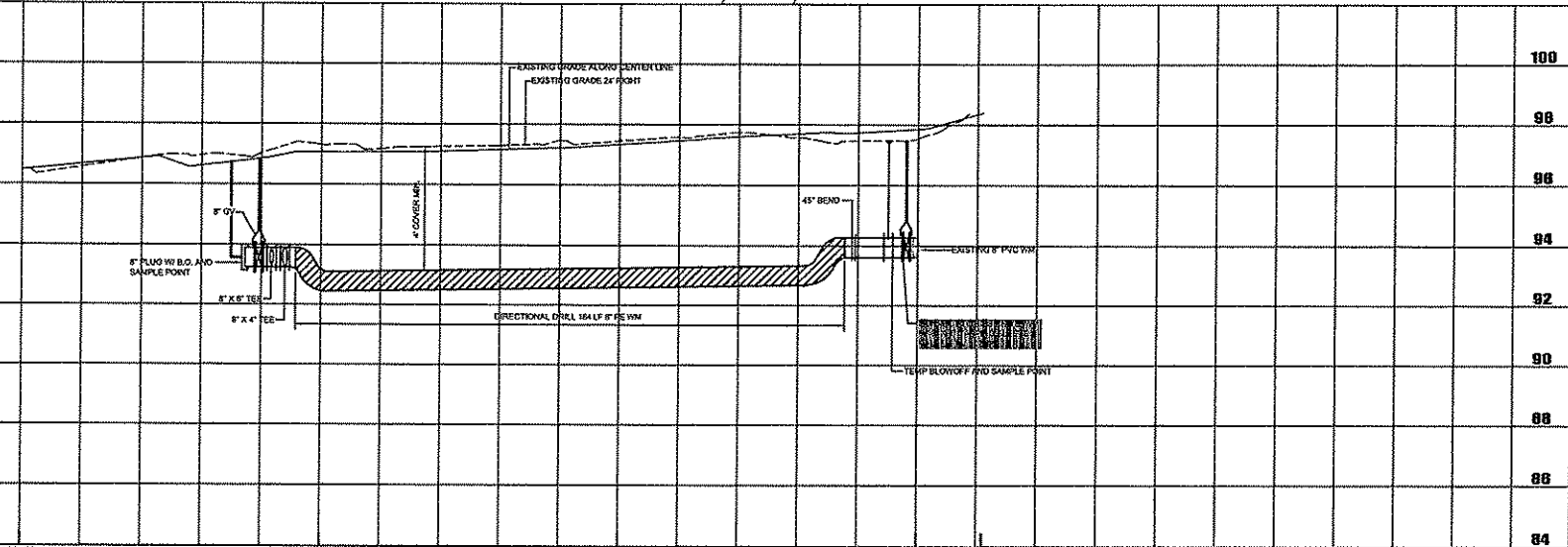
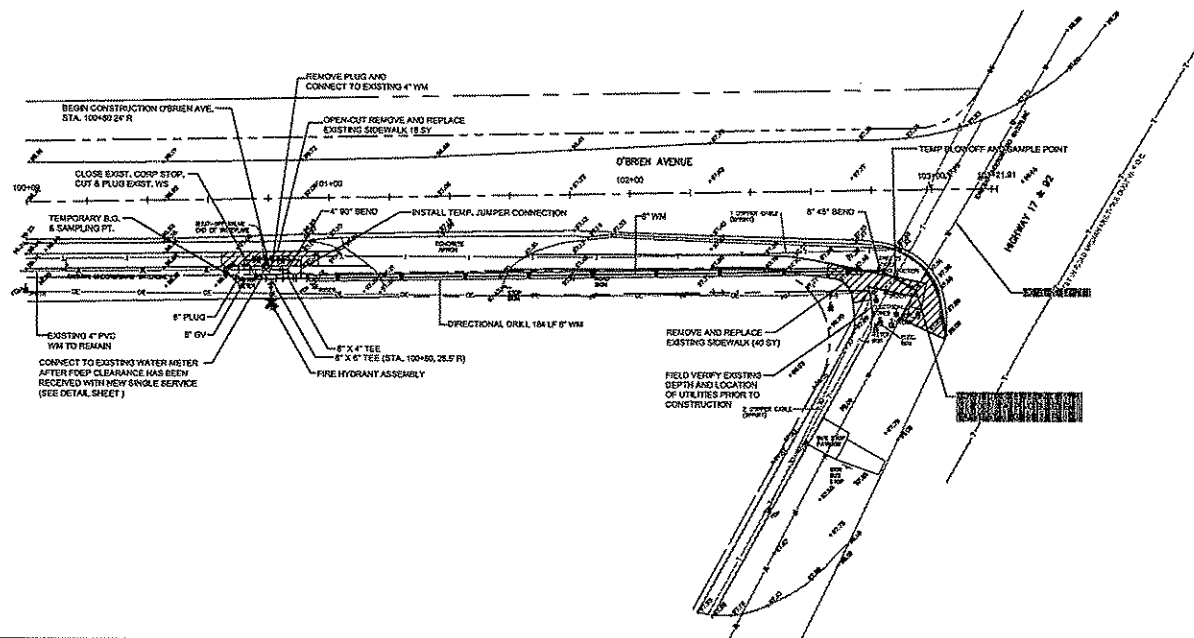








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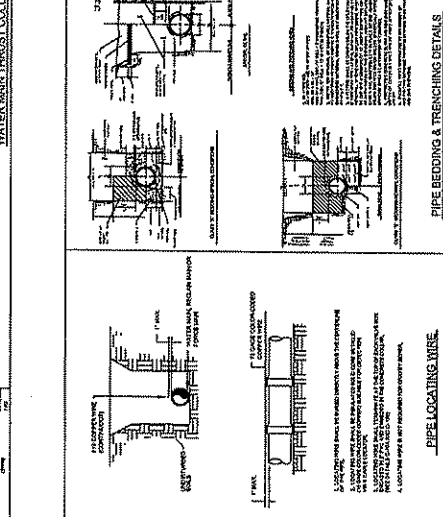
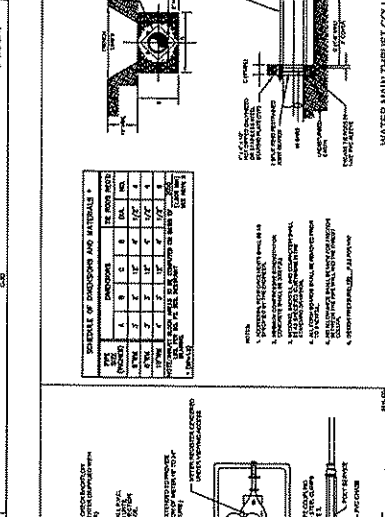
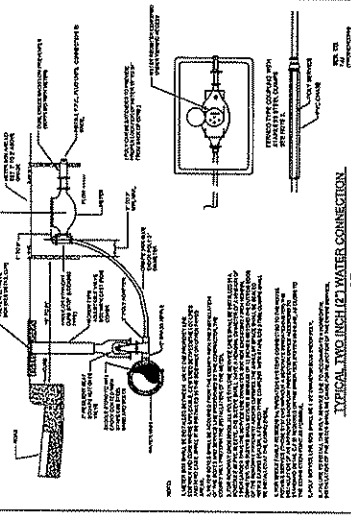
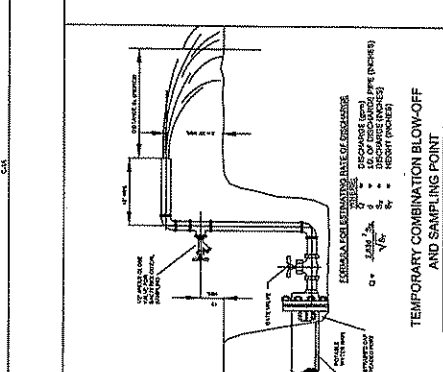
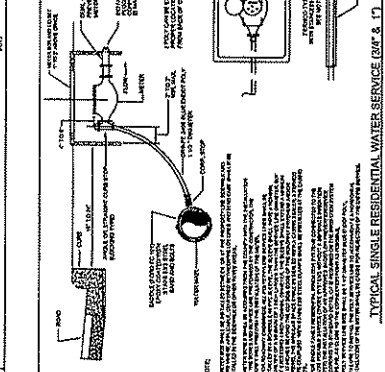
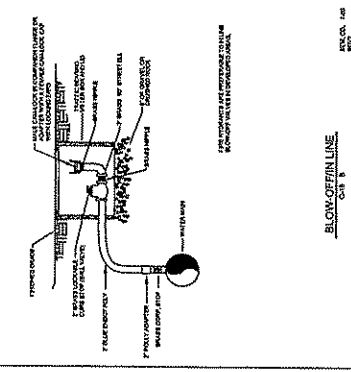
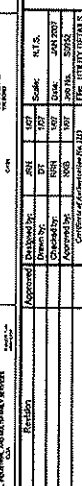
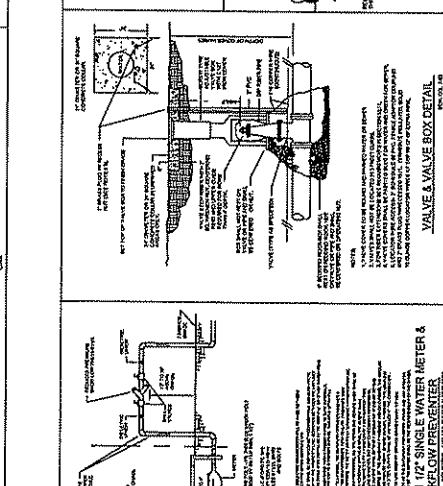
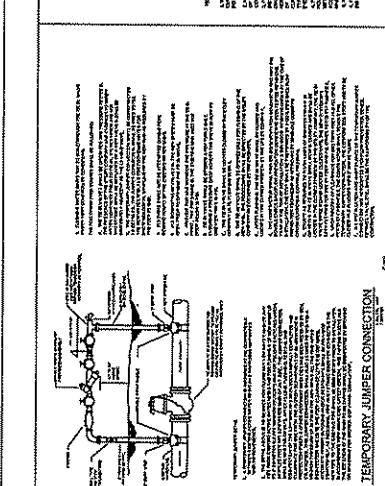
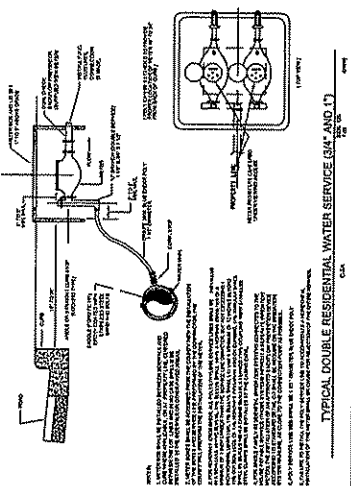
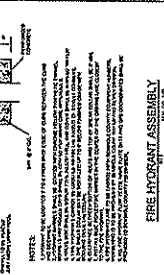
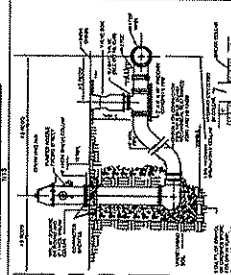
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3					102					102+00
4					103					103+00
5					104					103+21.91

**Fern Park  
 Water System Improvements  
 Phase 1**

**PLAN AND PROFILE  
 STA. 100+00 TO 103+21.91  
 (O'BRIEN AVE)**

Sheet No.  
**10**

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**EXHIBIT B**

**BID FORM**

**SEMINOLE COUNTY, FLORIDA  
FOR THE CONSTRUCTION OF**

PROJECT: Fern Park Water System Improvements – Phase I  
COUNTY CONTRACT NO. CC-2213-07/LKR

Name of Bidder: Expertech Network Installation, Inc.

Mailing Address: 2385 NW Executive Center Dr. suite 170

Street Address: 2385 NW Executive Center Dr. suite 170

City/State/Zip: Boca Raton, FL 33431

Phone Number: (877) 994-3226

FAX Number: (561) 994-0815

Contractor License Number: CUC1224319

TO: Purchasing and Contacts Division of Seminole County, Florida

Pursuant to and in compliance with your notice inviting sealed Bids (Invitation for Bid), Instructions to Bidders, and the other documents relating thereto, the undersigned Bidder, having familiarized himself with the terms of the Contract Documents, local conditions affecting the performance of the Work, and the cost of the Work at the place where the Work is to be done, hereby proposes and agrees to perform within the time stipulated in the Contract Documents, including all of its component parts and everything required to be performed, and to provide and furnish any and all of the labor, Material, and tools, expendable Equipment, and all utility and transportation services necessary to perform the Work and complete in a workmanlike manner, all of the Work required in connection with the construction of said Work all in strict conformity with the Plans and Specifications and other Contract Documents, including Addenda Nos. 1 through 1, on file at the Purchasing Division for the Total Bid (Contract Price) hereinafter set forth.

The undersigned Bidder agrees that the Work shall be completed according to the schedule set forth in the Contract Documents.

The undersigned Bidder further agrees to pay liquidated damages as described in the Contract Documents.

Bid prices must be stated in words in accordance with these Instructions to Bidders in the blank space(s) provided for that purpose.

Bidder acknowledges that it has read and fully understands all Sections of the Instructions To Bidders.

The undersigned, as Bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any person, firm or corporation; and he proposes and agrees, if the proposal is accepted, that he will execute an Agreement with the COUNTY in the form set forth in the Contract Documents; that he will furnish the Contract Security, Insurance Certificates, Endorsements, and Policies, that he is aware that failure to properly comply with the requirements set out in the "Instructions to Bidders" and elsewhere in the Contract Documents may result in a finding that the Bidder is non-responsive and may cause a forfeiture of the Bid Security.

Attention: Bids shall only be considered from those Bidders who have obtained these Contract Documents from the COUNTY directly or via the website ([www.seminolecountyfl.gov/purchasing](http://www.seminolecountyfl.gov/purchasing)).

#### BID FORM

Pursuant to and in compliance with your Invitation for Bid, the Instructions to Bidders, and other documents relating thereto, the undersigned hereby agrees to furnish all labor, Materials and Equipment to do the Work in strict accordance with the Contract Documents and all addenda, if any, issued prior to the date of this Bid at the Total Bid herein as follows:

TOTAL AMOUNT OF BID: \$ 254,865.19  
Numbers

Two hundred Fifty Four thousand, Eight hundred  
Sixty five hundred dollars and nineteen cents.  
(IN WORDS)

1. The Bidder acknowledges that the Total Amount of Bid stated above includes the sum of \$250.00 or 1% of the Bid whichever is greater, specific consideration for indemnification.
2. The Bidder acknowledges that the Total Amount of Bid stated above includes compensation for all Work, labor, permits, bonds, equipment, materials, and any and all incidental costs necessary for the proper execution of the required services.

**The Bidder acknowledges the receipt, execution, and return of the following forms:**

Section 00100 - Bid Forms, including alternates and addendum, if any  
Section 00150 - Trench Safety Act Form  
Section 00160 - Bidder Information Forms (*Including W-9*)  
Section 00300 - Non-Collusion Affidavit of Bidder Form  
Section 00310 - Certification of Nonsegregated Facilities Form  
Section 00330 - Drug-Free Workplace Form  
Section 00630 - Americans with Disabilities Act Form  
Section 00900 - Supplemental Conditions

IN WITNESS WHEREOF, BIDDER has hereunto executed this BID FORM this 17 day  
of July, 2007.

Expertech Network Installation, Inc.  
(Name of BIDDER)

[Signature]  
(Signature of person signing this BID FORM)

Doug Whyte  
(Printed name of person signing this BID FORM)

Director of US Operations  
(Title of person signing this BID FORM)

ACCOMPANYING THIS BID IS Bid bond

(insert the word(s) "cashier's check," bidder's bond," certified check," or other security as provided by  
law, as the case may be) in an amount equal to at least five percent (5%) of the Total Bid, payable to the

BOARD OF COUNTY COMMISSIONERS, SEMINOLE COUNTY, FLORIDA

The undersigned deposits above-named security as a Bid guarantee and agrees that it shall be  
forfeited to the COUNTY as liquidated damages in case this Bid is accepted by the COUNTY and the  
undersigned fails to execute an Agreement with the COUNTY as specified in the Contract Documents  
accompanied by the required Payment and faithful Performance Bonds with Sureties satisfactory to the  
COUNTY, and accompanied by the required certificates of insurance coverage, and endorsements.  
Should the COUNTY be required to engage the services of an attorney in connection with the  
enforcement of this Bid, Bidder promises to pay COUNTY's reasonable attorney's fees and costs  
(including attorney's fees and costs on appeals) incurred with or without suit.



**BID FORM**

### Bid Schedule

The Bidder hereby agrees to perform all work as required by the Contract Documents for the following Unit Prices. All work required to be performed by the Contract Documents is to be included within the following Pay Items, inclusive of furnishing all manpower, equipment, materials and performance of all operations relative to construction of the project. Work for which there is not a Pay Item will be considered incidental to the Contract and no additional compensation will be allowed.

BID SCHEDULE					
PAY ITEM NO.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
1	Mobilization	LS	1	10,000.00	10,000.00
2	Preconstruction Video	LS	1	850.00	850.00
3	Maintenance of Traffic	LS	1	2,000.00	2,000.00
4	Erosion and Sediment Control	LS	1	1,974.39	1,974.39
5	Clearing and Grubbing	LS	1	3,290.66	3,290.66
6	Demolition (WTP Site)	LS	1	19,743.94	19,743.94
7	Restoration (WTP Site)	LS	1	9,871.97	9,871.97
8	Remove and Reinstall Mailboxes	LS	1	658.13	658.13
9	Remove and Replace Landscaping	LS	1	2,632.53	2,632.53
10	Asphalt Pavement (Open Cut, Remove and Replace)	SY	89	47.39	4,217.71
11	Mill and Resurface Asphalt Pavement, Re-Stripe	SY	561	44.42	24,919.62
12	Asphalt Driveway (Remove and Replace)	SY	35	41.46	1,451.10
13	Concrete Curb (Remove and Replace)	SY	58	19.74	1,144.92
14	Concrete Sidewalk (Remove and Replace)	SY	82	23.69	1,942.58
15	Sodding (Bahia)	SY	728	2.49	1,812.72

NAME OF BIDDER: Expertech Network Installation, Inc.

REVISED PER ADD. NO. 1

BID SCHEDULE					
PAY ITEM NO.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
16	Sodding (St. Augustine)	SY	565	2.72	1,536.80
17	Remove Existing Chain Link Fence	LF	170	2.63	447.10
18	Type "B" Fence (5 ft)	LF	284	13.16	3,737.44
19	Single Swing Gate (4-ft Opening)	EA	1	329.07	329.07
20	Fittings (Water Main)	TN	2.0	4,213.51	8,427.02
21	8" PE Water Main (Directional Drill)	LF	1144	48.59	55,586.96
22	Crossing at Highland Dr.: 16" PE Casing w/ 8" PE carrier pipe (Directional Drilled) Or 16" Steel Casing w/ 8" PVC or DI Carrier Pipe (Jack and Bored)	LF	50	180.36	9,018.00
23	8" Water Main (PVC or D.I.) (Open Cut)	LF	364	30.76	11,196.64
24	4" Water Main (PVC or D.I.) (Open Cut)	LF	10	25.24	252.40
25	Remove Existing Valve (2", 3")	EA	4	329.07	1,316.28
26	8" Gate Valve	EA	9	1,543.55	13,891.95
27	Fire Hydrant Assembly	EA	4	3,735.21	14,940.84
28	Water Service Line (1.5") (Open Cut)	LF	108	14.23	1,536.84
29	Water Service Line (1.5") (Directional Drill w/3" PVC Sleeve)	LF	94	23.98	2,254.12
30	Water Service Line (2") (Open Cut)	LF	20	15.13	302.60
31	Single Water Service	EA	7	997.80	6,984.60
32	Double Water Service	EA	4	1,174.85	4,699.40
33	8" x 2" Service Saddle and 2" Gate Valve	EA	2	1,414.66	2,829.32
34	3" x 3" Tapping Sleeve and Valve	EA	2	2,370.07	4,740.14
35	6" x 6" Tapping Sleeve and Valve	EA	1	2,922.02	2,922.02

NAME OF BIDDER: Expertech Network Installation, Inc.

REVISED PER ADD. NO. 1

BID SCHEDULE					
PAY ITEM NO.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
36	8" x 8" Tapping Sleeve and Valve	EA	1	8,822.37	8,822.37
37	Line Stop Assembly (6")	EA	1	329.07	329.07
38	Restrained Cap with Concrete Thrust Collar (6")	EA	1	518.40	518.40
39	Connect to Existing 2" WM w/ 2" Coupling	EA	1	201.12	201.12
40	Connect to Existing 2" Galv. WM at Existing Valve	EA	1	329.07	329.07
41	Plug Existing 1" WM with 1" Brass Plug	EA	1	202.41	202.41
42	Plug Existing 2" WM with 2" Brass Plug	EA	11	214.77	2,362.47
43	Remove Plug and Connect to Existing 4" WM	EA	1	658.13	658.13
44	Temporary Jumper Connection	EA	2	2,288.04	4,576.08
45	Temporary Blowoff and Sampling Point	EA	6	567.71	3,406.26
TOTAL BASE BID					\$254,865.19

NAME OF BIDDER: Expertech Network Installation, Inc.

REVISED PER ADD. NO. 1

# EXHIBIT (C)

## TRENCH SAFETY ACT (if applicable for this project) SECTIONS 553.60-553.64, FLORIDA STATUTES

### NOTICE TO BIDDERS:

In order to comply with the Trench Safety Act, the Bidder is required to specify the costs of compliance. These costs are not a separate pay item. The Bidder must also reference the Trench Safety Standards which will be in effect during construction, and assure in writing that the Bidder will comply with the applicable Trench Safety Standards.

<u>TRENCH SAFETY MEASURE</u>	<u>UNITS OF MEASURE</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>EXTENDED COST</u>
<u>Shoring</u>	<u>LF</u>	<u>8</u>	<u>187.50</u>	<u>1,500.00</u>

TOTAL \$ 1,500.00

Doug Whyte  
Printed Name

D. J. Whyte  
Signature

Expertech Network Installation, Inc.  
Bidder Name

7/17/07  
Date

## EXHIBIT (D)

AMERICANS WITH DISABILITIES ACT  
AFFIDAVIT

The undersigned CONTRACTOR swears that the information herein contained is true and correct and that none of the information supplied was for the purpose of defrauding COUNTY.

The CONTRACTOR will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The CONTRACTOR agrees to comply with the rules, regulations and relevant orders issued pursuant to the Americans with Disabilities Act (ADA), 42 USC s. 12101 *et seq.* It is understood that in no event shall the COUNTY be held liable for the actions or omissions of the CONTRACTOR or any other party or parties to the Agreement for failure to comply with the ADA. The CONTRACTOR agrees to hold harmless and indemnify the COUNTY, its agents, officers or employees from any and all claims, demands, debts, liabilities or causes of action of every kind or character, whether in law or equity, resulting from the CONTRACTOR's acts or omissions in connection with the ADA.

CONTRACTOR:

EXPERTECH NETWORK INSTALLATIONS, INC

Signature:

*Doug Whyte*

Printed Name:

DOUG WHYTE

Title:

DIRECTOR OF U.S. OPERATIONS

Date:

7/17/07

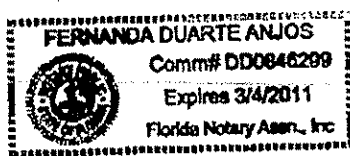
Affix Corporate Seal

STATE OF )

) ss

COUNTY OF )

The foregoing instrument was acknowledged before me this 17 day of JULY, 2007, by DOUG WHYTE of EXPERTECH NETWORK INSTALLATIONS, INC (firm), on behalf of the firm. He/She is personally known to me or has produced identification.



*Fernanda D. Anjos*  
Print Name FERNANDA DUARTE ANJOS  
Notary Public in and for the County  
and State Aforementioned

My commission expires: 3/4/2011

AMERICANS WITH DISABILITIES ACT AFFIDAVIT

6/2007

Fern Park Water System Improvements Phase I

00630-1

CC-2213-07/JKR

## B.C.C. - SEMINOLE COUNTY, FL BID TABULATION SHEET

BID NUMBER: CC-2213-07/LKR  
 BID TITLE: Fern Park Water System  
 Improvements Phase I  
 OPENING DATE: July 18, 2007 at 2:00 p.m.

ALL BIDS ACCEPTED BY SEMINOLE COUNTY ARE SUBJECT TO THE COUNTY'S TERMS AND CONDITIONS AND ANY AND ALL ADDITIONAL TERMS AND CONDITIONS SUBMITTED BY THE BIDDERS ARE REJECTED AND SHALL HAVE NO FORCE AND EFFECT. BID DOCUMENTS FROM THE VENDORS LISTED HEREIN ARE THE ONLY BIDS RECEIVED TIMELY AS OF THE ABOVE OPENING DATE AND TIME. ALL OTHER BID DOCUMENTS SUBMITTED IN RESPONSE TO THIS SOLICITATION, IF ANY, ARE HEREBY REJECTED AS LATE.

PAGE: 1 of 1

ITEM DESCRIPTION	Response 1	Response 2	Response 3
	Expertech Network Installation, Inc. 2385 NW Executive Center Dr. Suite 170 Boca Raton, FL 33431  Mr. Doug Whyte  PH. (561) 994-3226 FX. (561) 994-0815	AJC Construction, LLC 8046A Presidents Drive Orlando, FL 32809  Mr. Alexander Caputo  PH. (407) 855-5572 FX. (407) 855-4922	Central Florida Environmental Corp. 910 Belle Avenue, Suite 1040 Winter Springs, FL 32708  Mr. Gary Wieseler  PH. (407) 834-6115 FX. (407) 834-6115
<b>TOTAL AMOUNT OF BID</b>	<b>\$254,865.19</b>	<b>\$346,000.00</b>	<b>\$510,291.60</b>
Acknowledge Addenda (1)	Yes	Yes	Yes
Bid Bond	Yes	Yes	Yes
Trench Safety Act	Yes	Yes	Yes
Bidder Information Form	Yes	Yes	Yes
Experience of Bidder	Yes	Yes	Yes
Non-Collusion Affidavit	Yes	Yes	Yes
Certificate of Nonsegregated Facilities	Yes	Yes	Yes
American w/Disabilities Affidavit	Yes	Yes	Yes

Opened and Tabulated by Lisa Riner, Senior Procurement Analyst  
 Posted by Lisa Riner on July 19, 2007 at 1:50 p.m. Eastern.

Recommendation: **Expertech Network Installation, Inc.**  
 Posted by Lisa Riner on July 30, 2007 at 11:10 a.m. Eastern.

Board Date: August 28, 2007  
 Posted by Lisa Riner on July 30, 2007 at 11:10 a.m. Eastern.